SERVICE MANUAL

(without price)

ELECTRONIC CASH REGISTER

QT-6100

(EX-819)

AUG. 2008

QT-6100

INDEX

CASIO

CONTENTS

QT-6100 PAGE

1. **SPECIFICATIONS** 1
2. **INITIALIZATION** 5
3. **DISASSEMBLY** 9
4. **ASSEMBLY** 15
5. **OPTION INSTALLATION** 21
6. **IN LINE / ON LINE** 25
7. **DIAGNOSTIC OPERATION** 27
8. **CIRCUIT EXPLANATIONS** 47
9. **ERROR CODE LIST** 66
10. **IC DATA** 78
11. **PCB LAYOUT** 90
12. **CIRCUIT DIAGRAMS** 93
13. **PARTS LIST** 110

To prevent malfunctions caused by the weak batteries, charge the memory protection batteries for over 12-hours before installation or after a long-time vacation (over 30 days).

- **Before installation, initialize the terminal and leave it turn on over 12-hours.**
- **After a long-time vacation, initialize the terminal and restore the program data if the terminal is in malfunction, and leave it turn on over 12-hours.**
- **Over 48-hours charging makes the batteries fully charged.**

1. SPECIFICATIONS

1-1. Electrical Specifications

		120V	220V	230V	240V
• Power consumption	<AC input current at Adaptor>				
	In operation Max.	1.1A	1.1A	1.1A	1.1A
	Display off Max.	0.25A	0.15A	0.15A	0.15A
	<DC input current at QT-6100>				
	In operation Max.	1.1A	1.1A	1.1A	1.1A
	Display off Max.	0.5A	0.5A	0.5A	0.5A
• Memory protection	Back-up battery	NiMH (nickel-metal-hydride) HHR-21HL3G1B (USA only) HHR-21HL3G1C (Except USA)			
	Back-up period	30 days (25 °C)			
	Battery life	Replace the battery every 5 years.			
	Recharge time	24 hours (full charge)			
• Clock & Calendar	Accuracy	Within ± 40 sec. Per month (25 °C)			
	Auto calendar	Effective until 2099 A.D.			

1-2. Environmental specifications

• Operating temperature	0 °C ~ 40 °C
• Operating humidity	20 % ~ 85 %
• Storage temperature	-20 °C ~ 65 °C
• Storage humidity	10 % ~ 85 %

1-3. Main LSI specifications

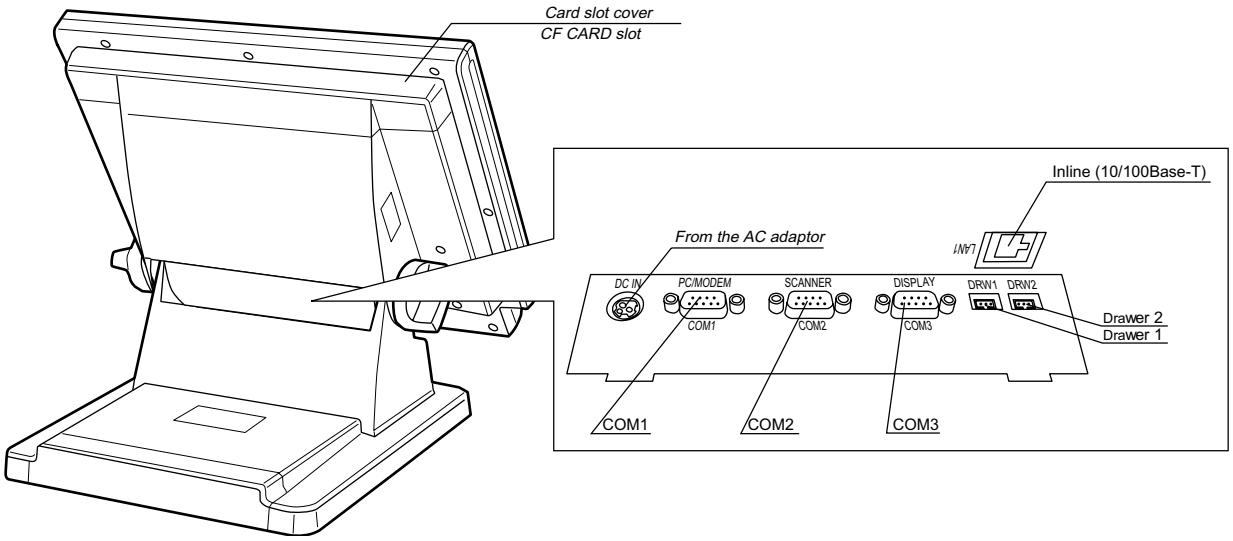
• CPU	Name Number of control bit	HD6417751RF240 (SH-4) 32 bits
• I/O controller	Name Number of control bit	D784215AGC2728EUA 16 bits
• Gate array	Name	UPD65945GJ-P16-JEU
• SDRAM	Name Capacity	HY5V52ALFP-H-C 256 Mbits
• Flash ROM	Name Capacity	29PL127J60TFI13004 128 Mbits
• Display controller	Name	SM712GX04LF02-BA
• Ethernet controller	Name	LAN91C113-NE (10/100BASE TX)

1-4. Devices specifications

• LCD Display	Name Size Resolution Interface Colors	NL8060BC31-27 12.1 inch SVGA TFT panel 800 x 600 CMOS 6 bits 262,144 colors
• Touch Panel	Name Size	N010-0550-T711 12.1 inch
• Panel brightness control		1 x VR controller
• Power supply		External adaptor "ADP820AA"
• Cleck key		Magnetic ibutton prove "94-J-04"

1-5. I/O Ports

COM port (D sub 9pin) x 3
LAN port (Ethernet 10BASE-T/100BASE-TX) x 1
CF CARD slot x 1
Drawer port x 2



1-6. Option List

CASIO sales options

DEVICE NAMEMODEL	NOTE	
• Magnet i-Button	QT-6011DLS	
• Display set for customer	QT-6060D	Connect to Com 3
• Display cable for customer (for mounting to the base)	QT-6061CB	
• Display 5-meter cable for customer	QT-6062CB	
• Slip printer	SP-1300	Connect to Com 2, 3
• Slip printer cable	PRT-CB-8C	Length 1.5m
• Remote printer	UP-250	Connect to Com 2, 3
• Remote printer	UP-350	Connect to Com 2, 3
• Remote printer	SA-3015	Connect to Com 2, 3
• Remote printer	UP-360	Connect to Com 2, 3
• Printer cable	PRT-CB-8A	Length 3m
• Printer cable	PRT-CB-8B	Length 5m
• Power unit for External Printer	PS-180	EPSON MODEL
• Handy scnner	HHS-15	Com2 port only
• MCR	QT-6046MCR	
• Drawer cable	QT-6031CB	Length 3m
• PC cable	PRL-CB-2	Com1 port only

Local purchase options

DEVICE NAMEMAKER	MODEL	NOTE	
• Slip printer/ AC adaptor		AD31-U or E	U: 100V / E: 200V
• Remote printer	EPSON	TM-T88 III	Connect to Com 2, 3
• Remote printer	EPSON	TM-U220	Connect to Com 2, 3
• Power cord for power unit	EPSON	AC-170	
• Laser scanner	PSC	QuickScan6000	Com2 port only
• Handy scnner	PSC	HS1250	Com2 port only
• CF Memory card	Sandisk	SDCFB-xx-505	
• Modem	U.S.Robotics	56k FAX	
• ISDN TA	DEVOLO	MICROLINK ISDN	
• HUB	NETGEAR	DS104, DS108	

1-7. Drawer

Type	Drawer Name	Specification	USA	Other Countries
M	DL-2785	D-20BC-B84M-15*		X
M	DL-2786	D-20BC-B84SM-15*		X
M	DL-2920	D-20BC-B87M-15*		X
M	DL-2921	D-20BC-B87SM-15*		X
M	DL-2425	D-20BC-B55SM-15*	X	
M	DL-2525	D-20BC-B64SM-15*	X	
L	DL-3616	D-11BH-B65SS-9*	X	X
L	DL-3617	D-11BH-B65S-9*		X

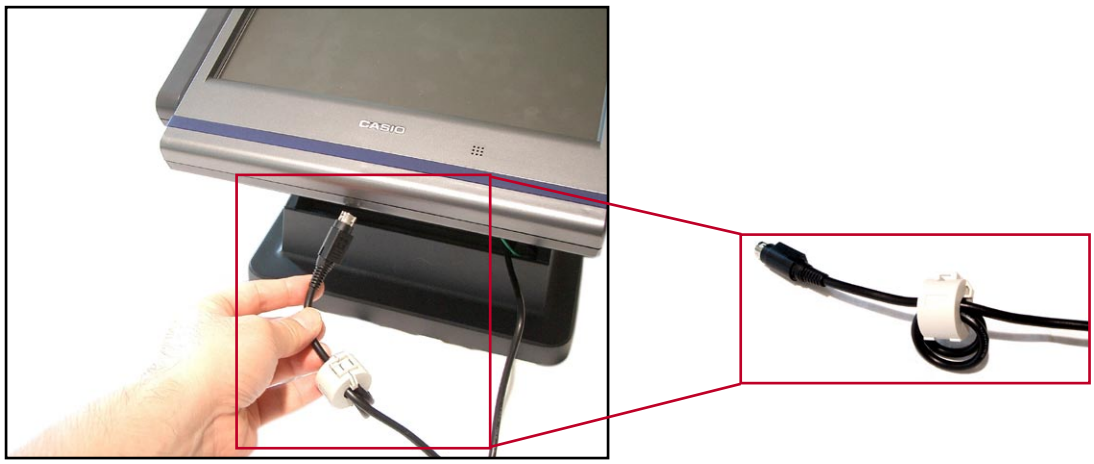
1-8. Duration of Life

Panel of TFT LCD	50,000 hours
Back Light of TFT LCD	43,000 hours
Touch Panel (number of touch times)	10 million times
LCD of customer display (option)	20,000 hours
Back light of customer display (option)	20,000 hours
Head of MCR	300,000 times (in a clean office room)

■ Installing Precautions

When installing QT-6100, attach the ferrite core to the QT-6100 side. Wind the AC adaptor cable around the ferrite core two times.

The ferrite core is packed with QT-6100.



CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type
recommended by the manufacturer.
Dispose of used batteries according
to the manufacture's instructions.

VORSICHT !
Explosionsgefahr bei unsachgemäßem Austausch der
Batterie.
Ersatz nur durch denselben oder einen vom
Hersteller empfohlenen gleichwertigen Typ.
Entsorgung gebrauchter Batterien nach
Angaben des Herstellers.

ADVARSEL !
Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandØren.

2. INITIALIZATION

2-1. MACHINE INITIALIZATION

2-1-1. How to initialize the terminal

Preparation:

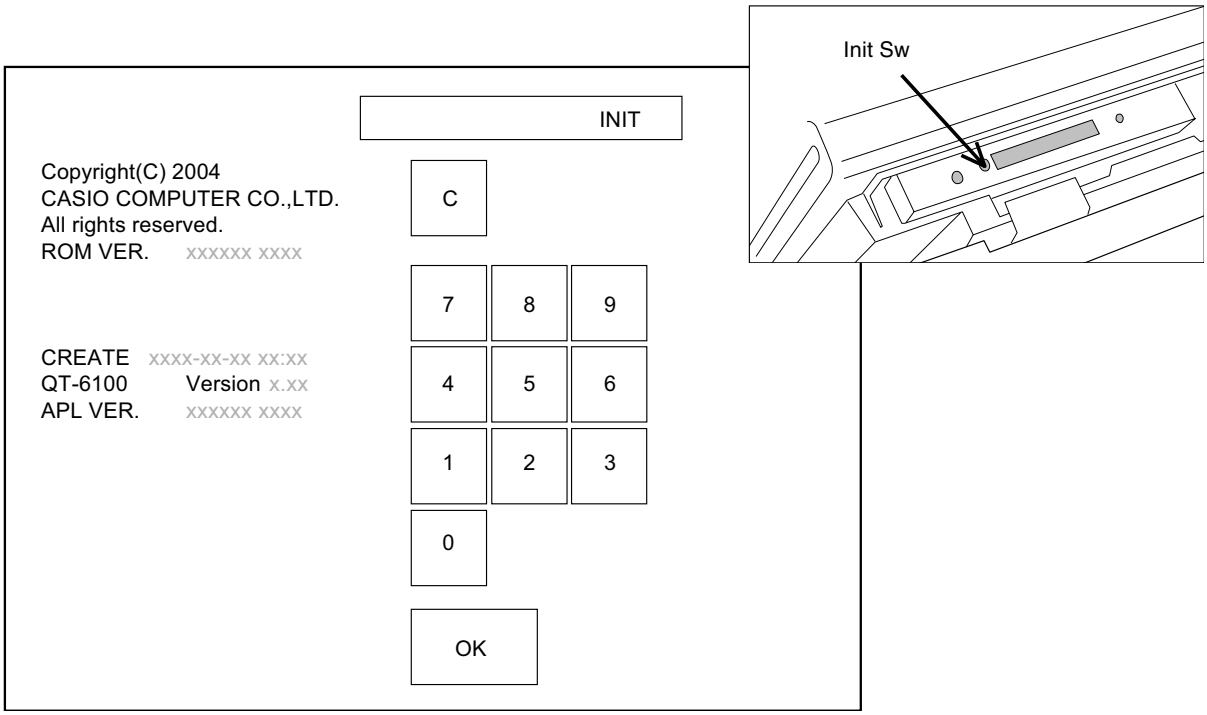
1. All peripheral devices and terminals should be turned off.
2. Connect all of the peripheral devices (such as printer, display etc.) to terminal.

• In case of wire inline:

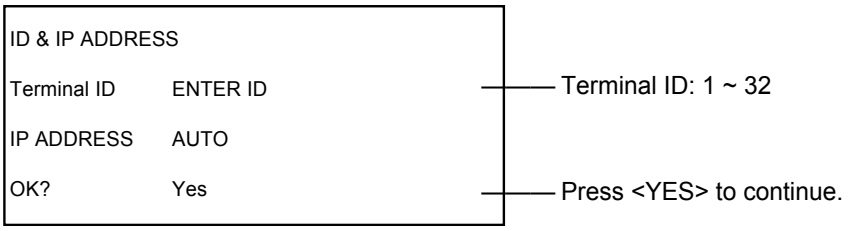
3. Connect all terminals by inline.

Operation:

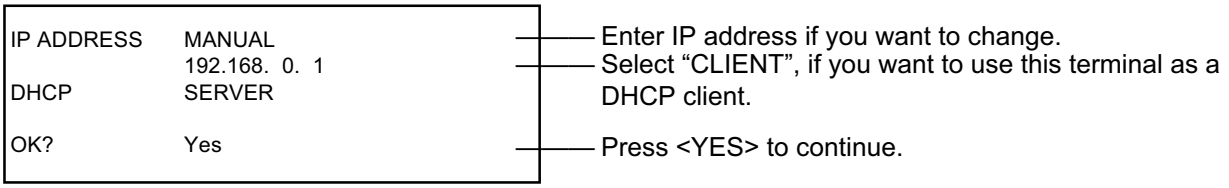
4. Turn on all peripheral devices of a terminal
5. Turn on this terminal with pressing the initialize switch and release.
6. After releasing the key, enter “20000” (U.S.), “10000” (other area: English), “40000” (other area: German), “50000” (other area: French), “60000” (other area: Spanish) and press the <OK> key.



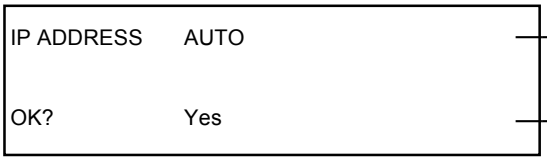
Enter terminal ID and IP address



• Case 1: Terminal ID = “1”


IP ADDRESS MANUAL
192.168. 0. 1
DHCP SERVER
OK? Yes
Enter IP address if you want to change.
Select “CLIENT”, if you want to use this terminal as a DHCP client.
Press <YES> to continue.

• Case 2: Terminal ID = “2” ~ “32”

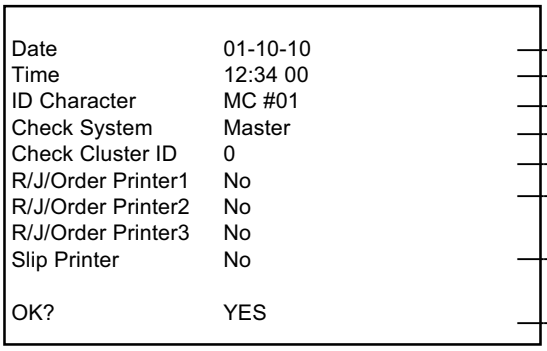


Select “MAUAL”, if you want to enter IP address manually. (IP address setting line will appear on the screen.)

Press <YES> to continue.

* The IP address of each terminal should be the unique number from 192.168. 0. 1 to 192.168.255.255.

Declare terminal configuration



Enter date if it is wrong.

Enter time if it is wrong.

Within 12 characters

Master / Backup master / Satellite / Self master

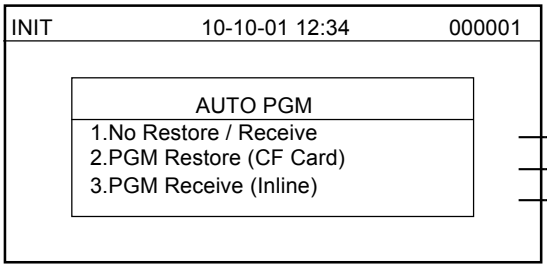
“Check Cluster ID” is always 0

No printer / UP-350 / UP-360 / SA-3015 / UP-250 for R/J or Order printer.

No printer / SA-3015 / SP-1300

Press <YES> to continue.

Program restoration



Select, if no need to download any data.

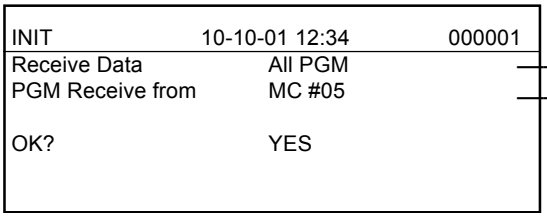
Select to download a program data from CF card.

Select to download a program data from other terminal.

• Restore from CF card.

Insert the CF card into the slot and select the appropriate file and press the <YES> key.

• Program receive from other terminal.



All Data (including totalizer) / All PGM (program only)

Select the machine to send the data.

2-1-2. How to initialize the terminal (add / replace one terminal)

Preparation:

1. All peripheral devices and terminals of this cluster should be turned off.
2. Connect all of the peripheral devices (such as printer, display etc.) to this terminal.
3. Connect the added / replaced terminal to inline.

Operation:

Follow the steps shown on the page 5 to 6.

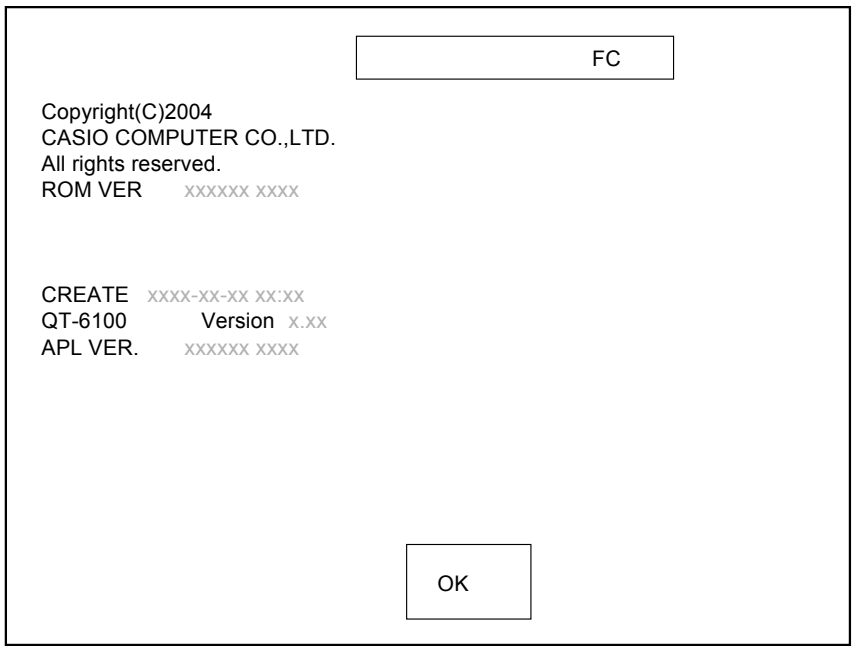
2-1-3. How to flag clear the terminal (or INIT2)

Preparation:

1. All peripheral devices and this terminal should be turned off.
2. Check the connection of all peripheral devices (such as printer, display etc.) of this terminal.
3. Check the connection of this terminal to inline.

Operation:

4. Turn on all peripheral devices of this terminal.
5. Turn on this terminal with pressing the <DISP ON/OFF> key.
6. Press <OK> key.



7. Select “1. Flag Clear” and press <YES> key to flag clear.
   or select “2.Init2” and press <YES> key and enter “8888888888” and <YES> key to Init 2.

2-2. SYSTEM INITIALIZATION

In this chapter shows how to install QT-6100 systems and peripherals.

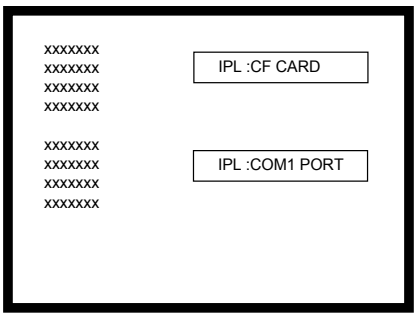
2-2-1. How to load IPL (Initial Program Loading)

Normally, IPL is not necessary since the terminal has efficient programmable options to meet your circumstances.
In some cases, you need to change the application program to meet your requirements, the IPL is necessary to download the application program to the terminal.
To load IPL, there are two methods:
1) From PC to a terminal via RS-232C
2) From CF card to a terminal

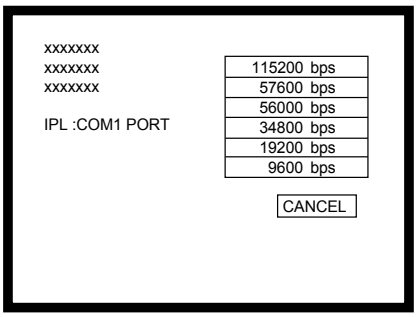
2-2-2. IPL Operation

If you select “CF card”, insert the CF card into the slot before this step.

1. Select the appropriate method to loading IPL data.

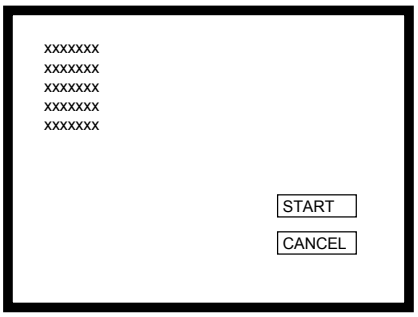


2. If you choose COM port or IN LINE port, select baud rate of the IPL source device.



(using COM PORT)

3. Press the <START> key to proceed, in case of downloading via inline, automatic ID definition is made by this timing. So press the <YES> key terminal by terminal.



4. After finishing IPL, machine initialization is necessary.

3. DISASSEMBLY

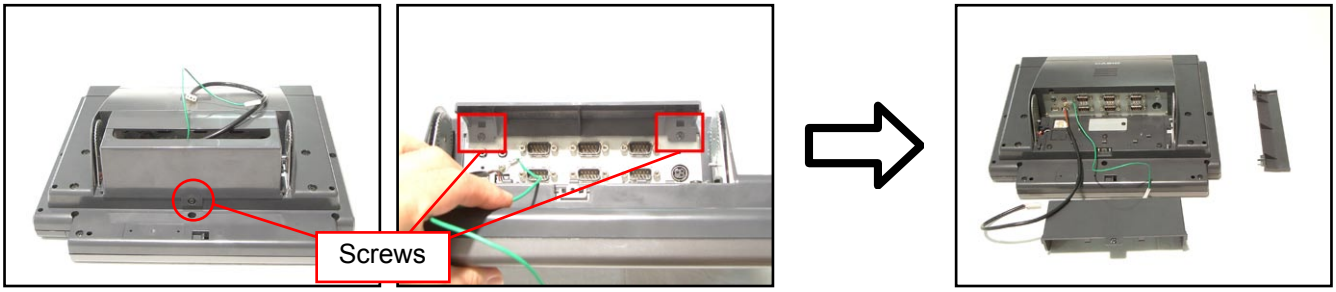
■ QT-6100

The photos show a similar model, QT-6000. Therefore the appearance may slightly differ.

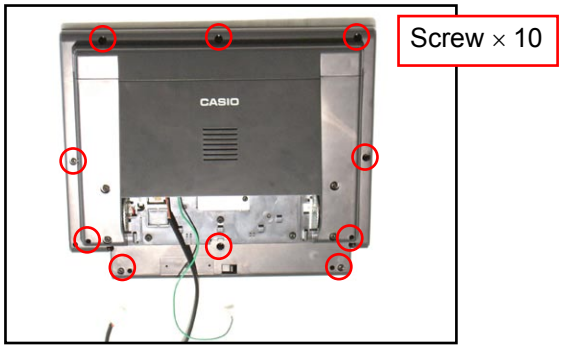
- **The number of COM ports has been changed from 6 to 3.**
- **The speaker has been deleted, and a buzzer has been added on the E819-S1 board.**

1. Separate the main unit and the stand.

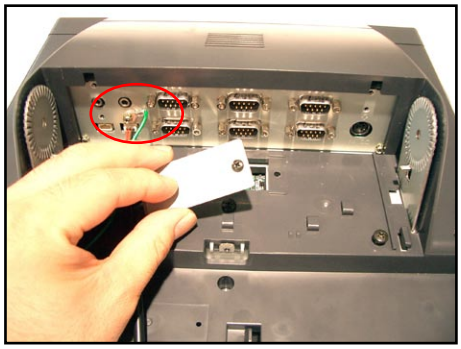
2. Remove one screw and the cover.
3. Remove two screws and the cover.



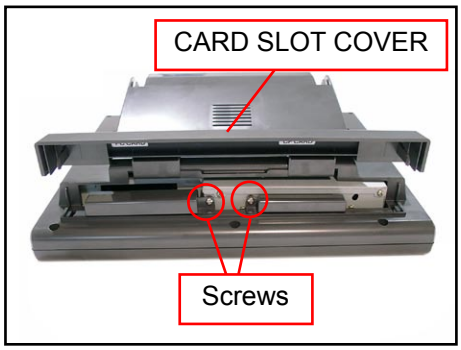
4. Remove ten screws.



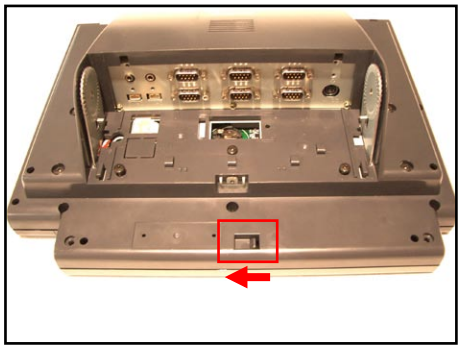
5. Remove one screw and the lid of the software key.
6. Remove the wiring for the DRAWER (a cable and an earth).



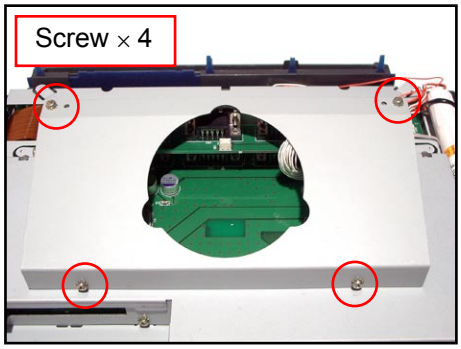
7. Open the CARD SLOT COVER.
8. Remove each screw, and then the PC CARD and the COVER for the CF CARD.

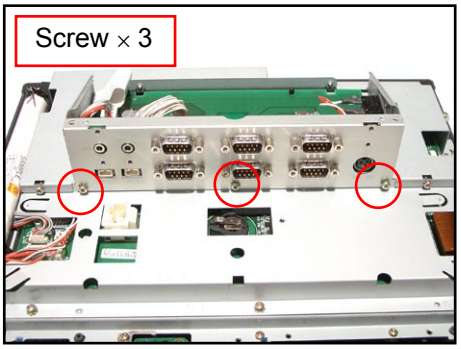


9. Release the hook and remove the REAR CASE.

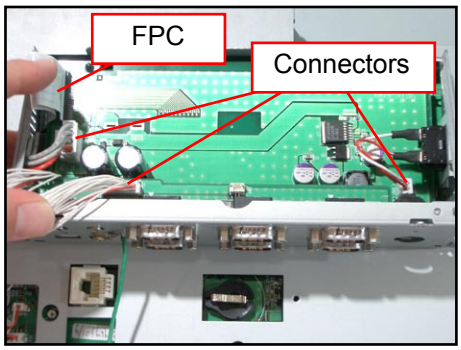


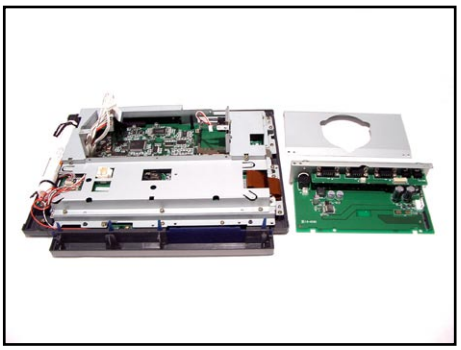
10. Remove four screws and the iron plate.
11. Remove three screws.



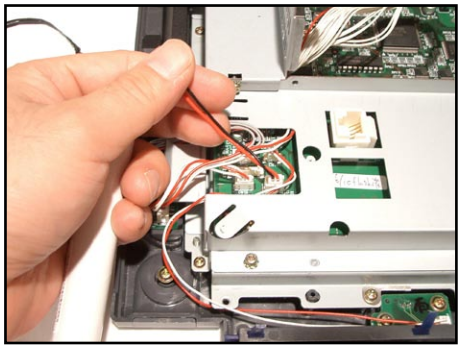


12. Remove four connectors, one FPC and the IO unit.

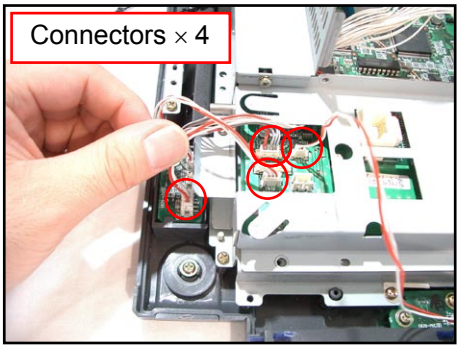




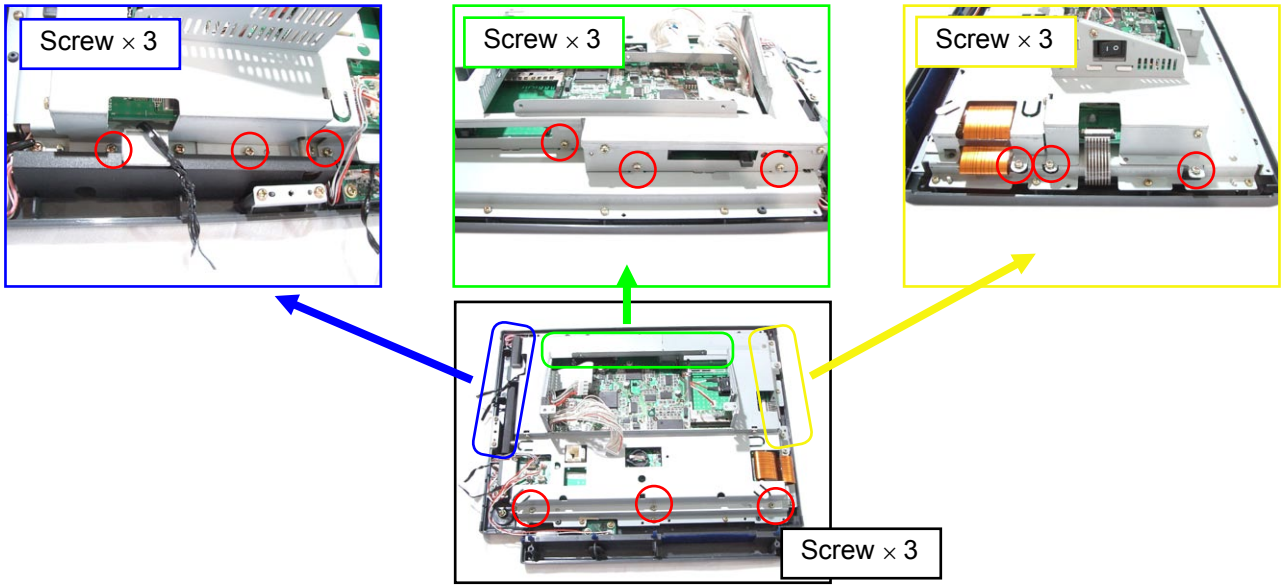
13. Remove the connector for the battery and the battery.



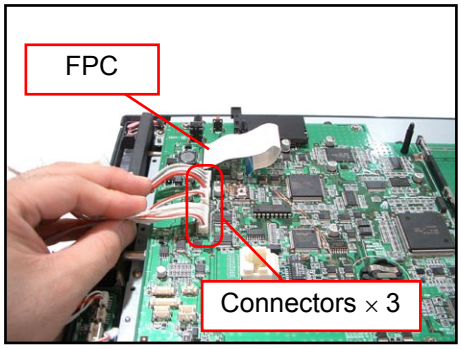
15. Remove four connectors.



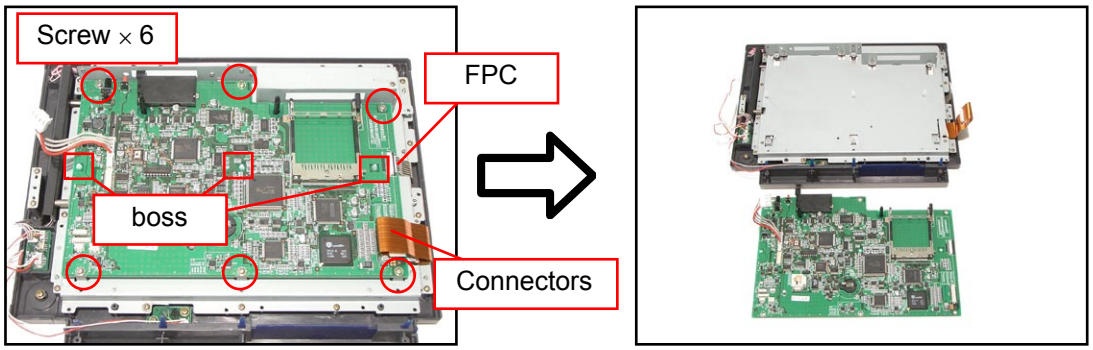
14. Remove twelve screws and the metal bracket.



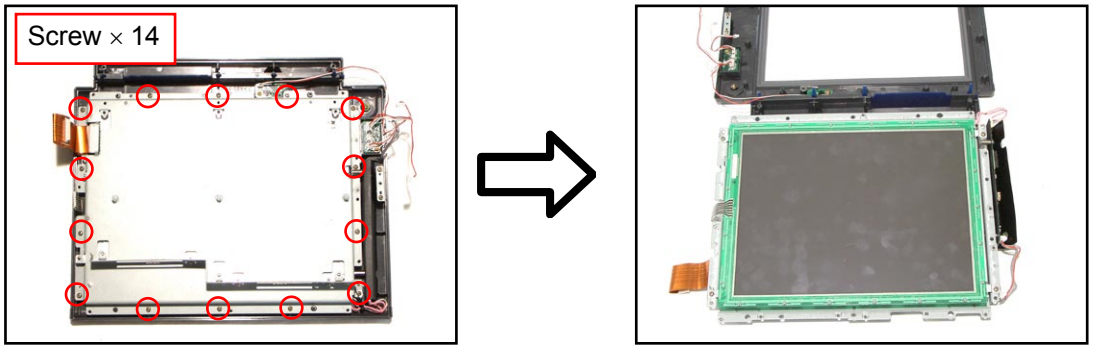
15. Remove three connectors and one FPC.



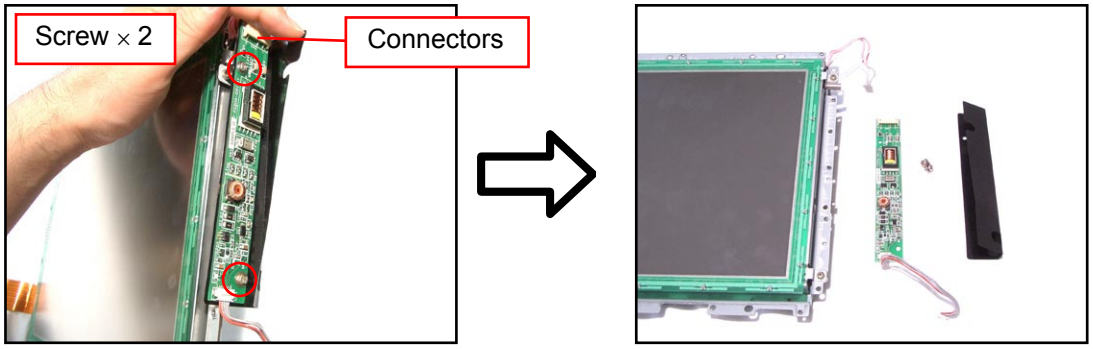
16. Remove six screws, one connector, one FPC, three bosses, and then remove the main PCB.



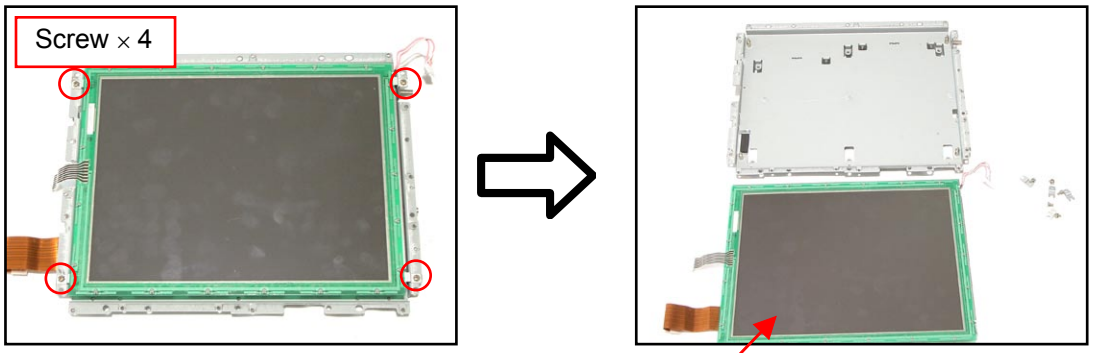
17. Remove 14 screws and then the LCD unit.



18. Remove two screws, one connector and the inverter PCB.

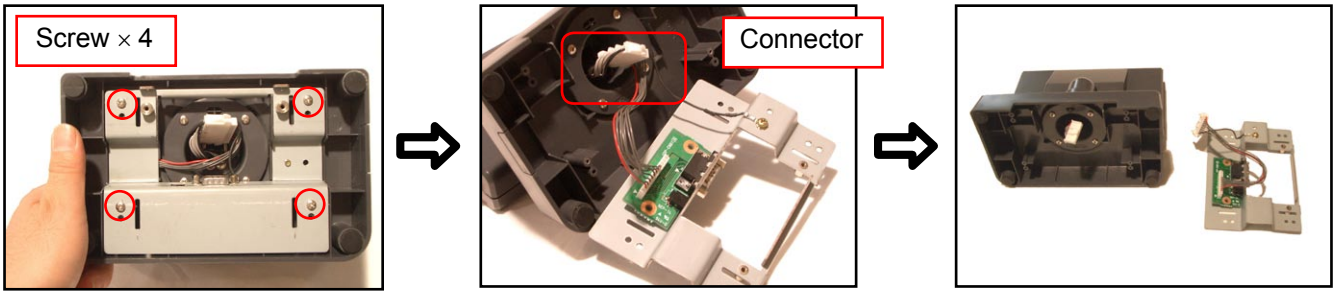


19. Remove four screws and the LCD.

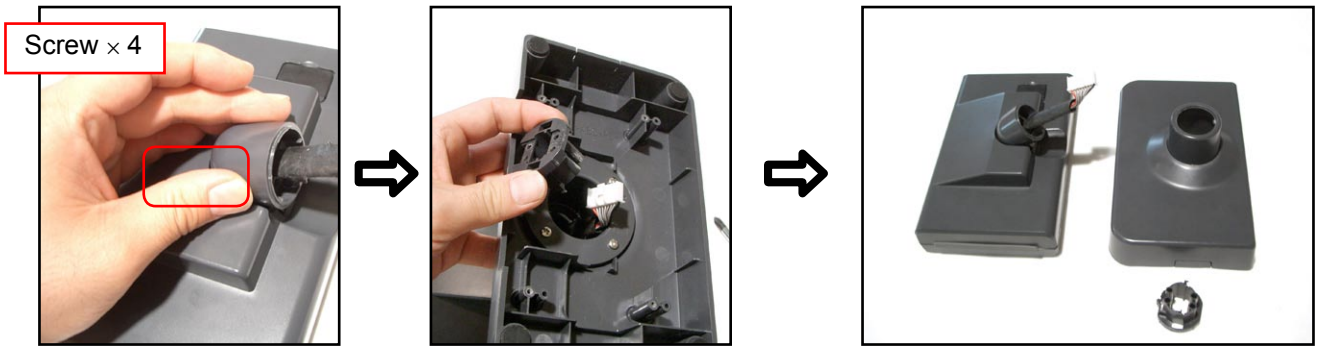


■ QT-6060D

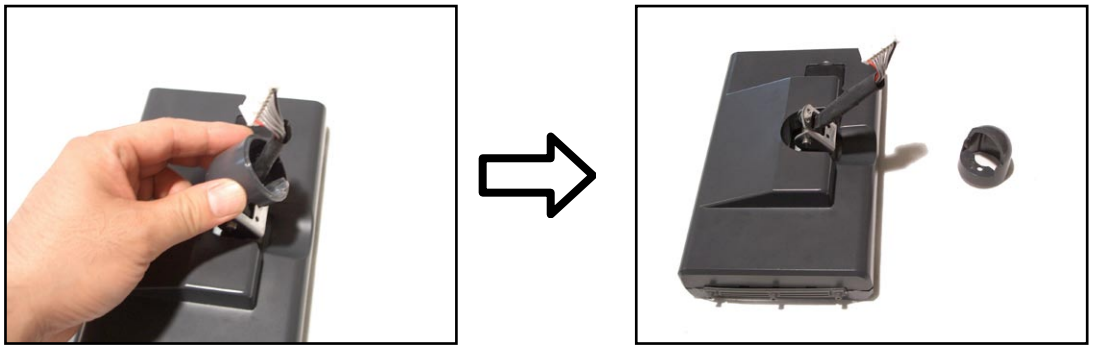
1. Remove four screws.
2. Release the connector and remove the IO PCB.



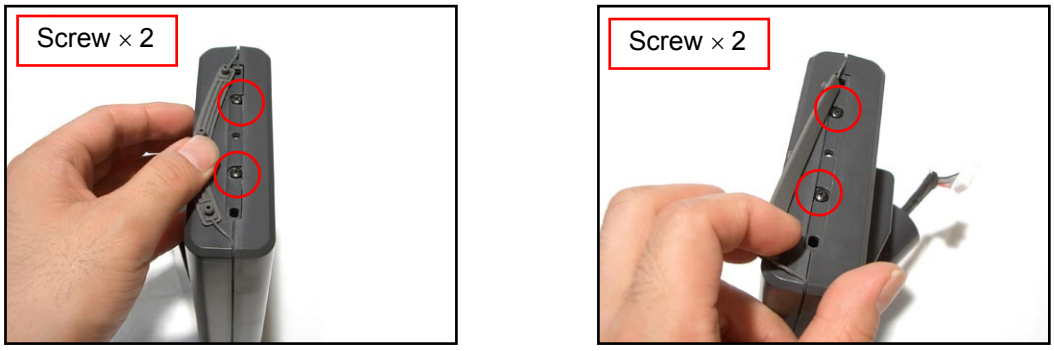
3. Remove four screws and separate the unit as shown below.



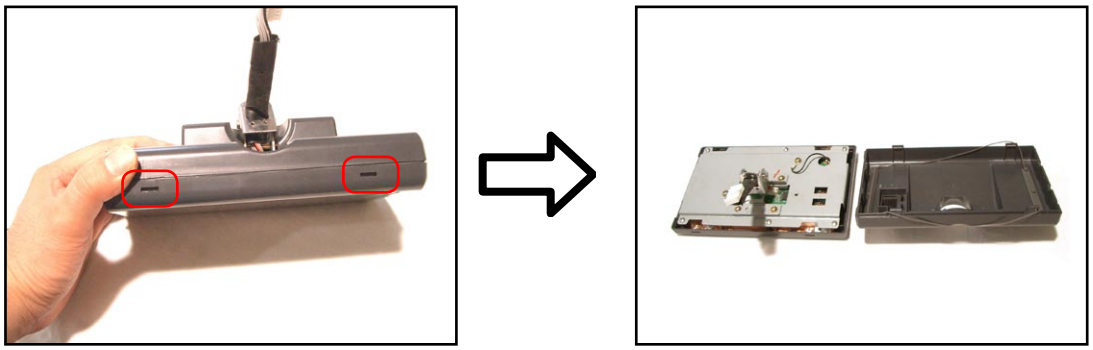
4. Remove the cap.



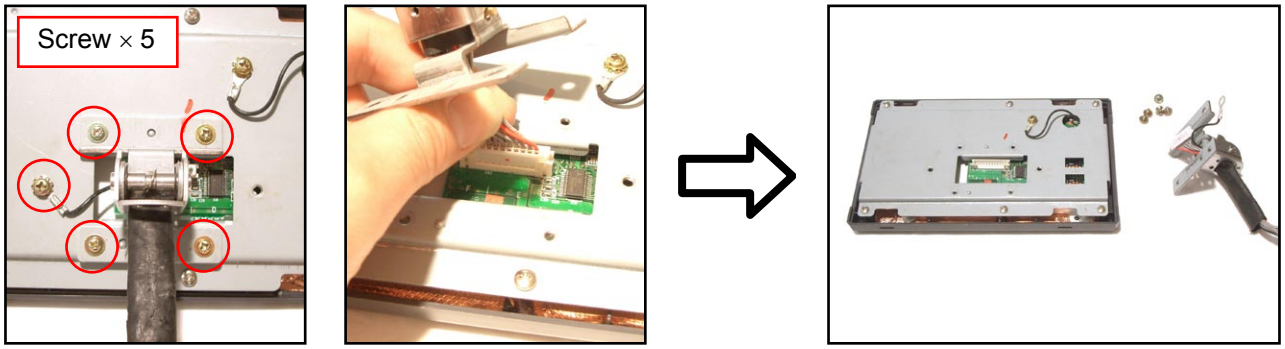
5. Remove four screws under both packing.



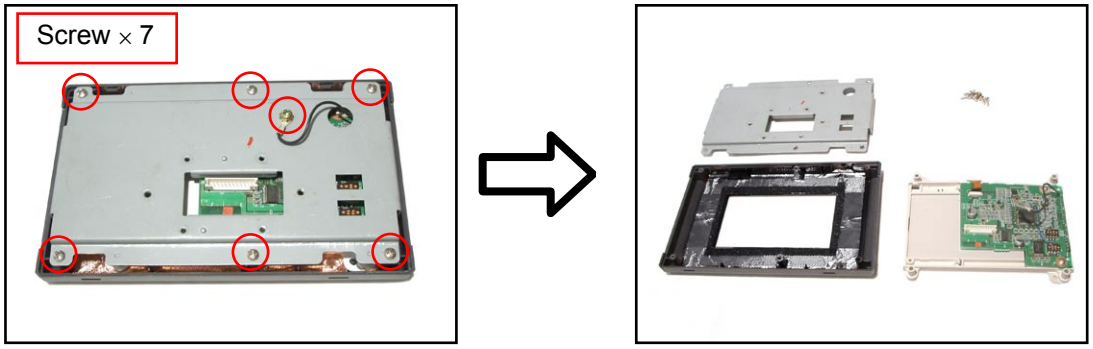
6. Release the hook and remove the REAR CASE.



7. Remove five screws, connector and the HINGE.



8. Remove seven screws and separate the LCD Unit.



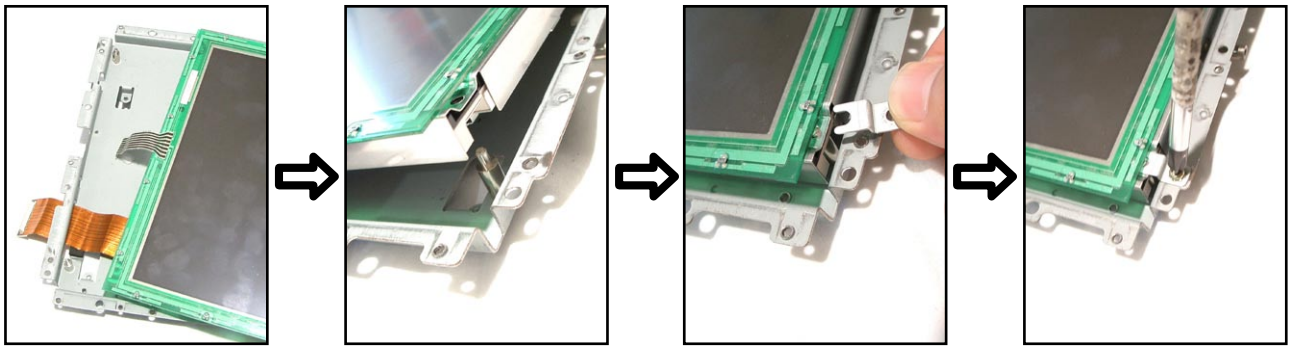
4. ASSEMBLY

■ QT-6100

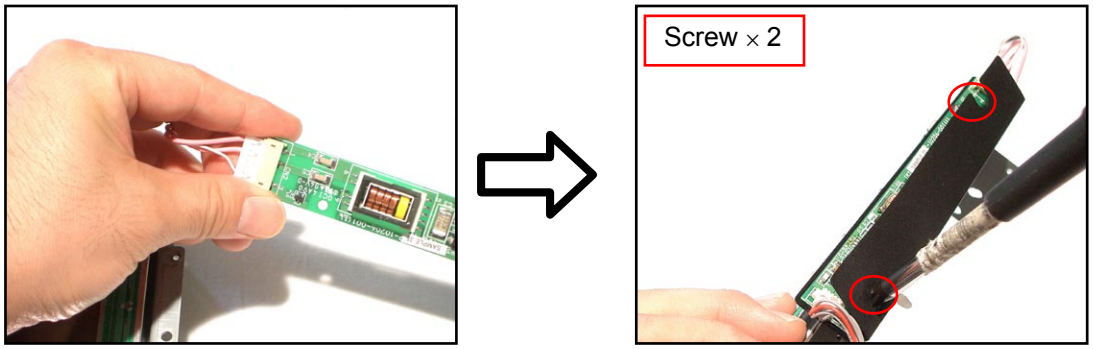
The photos show a similar model, QT-6000. Therefore the appearance may slightly differ.

- **The number of COM ports has been changed from 6 to 3.**
- **The speaker has been deleted, and a buzzer has been added on the E819-S1 board.**

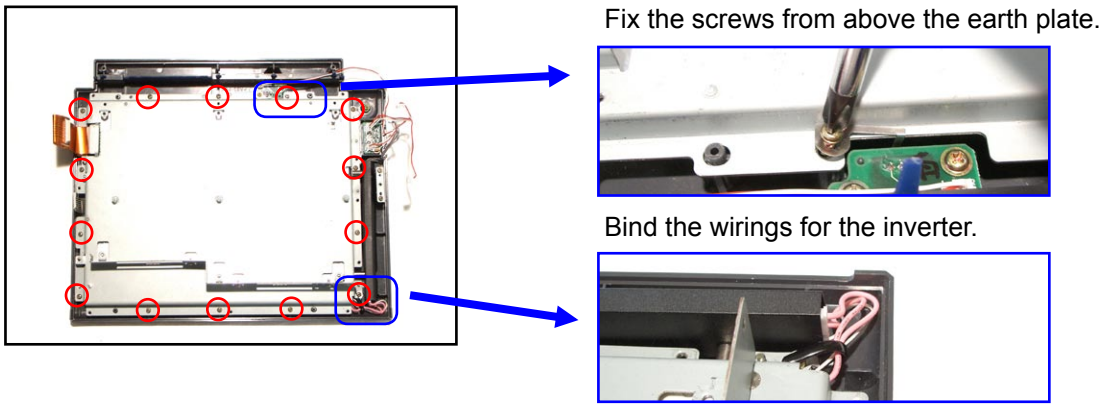
1. Place the LCD UNIT in the frame and fix it with four screws.



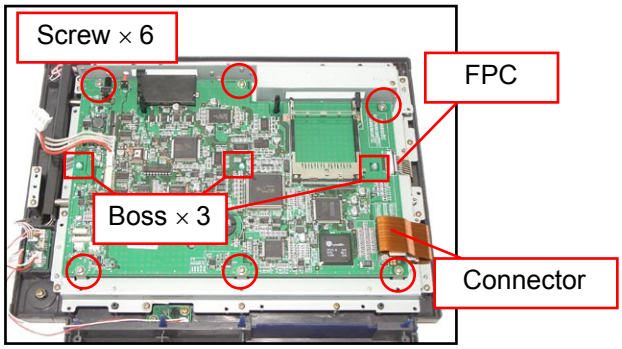
2. Connect the connector and fix the inverter PCB with two screws.



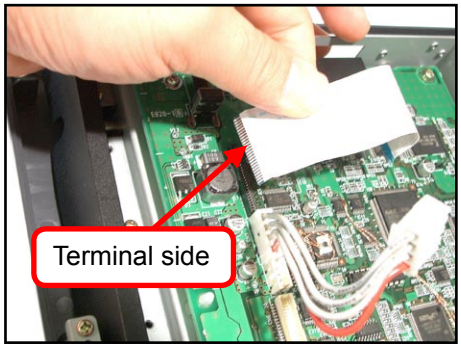
3. Fix the LCD UNIT to the FRONT CASE with 14 screws.

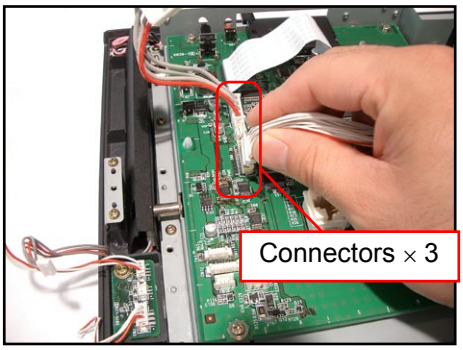


4. Fix the main PCB with six screws and three bosses.

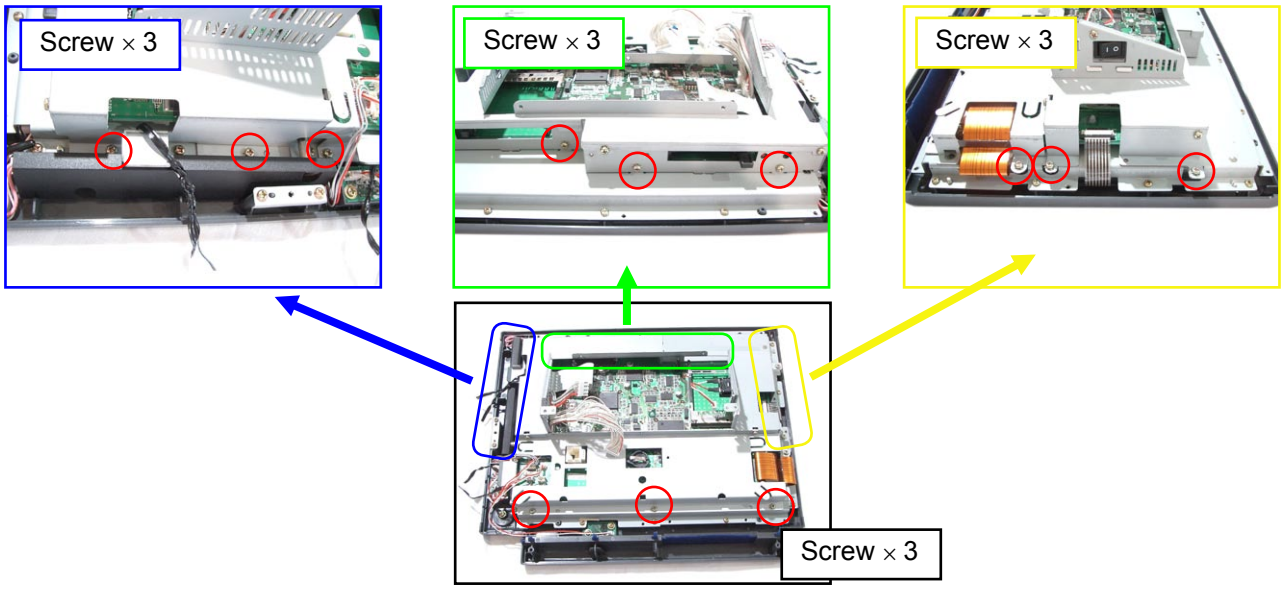


5. Connect one PFC and three connector.

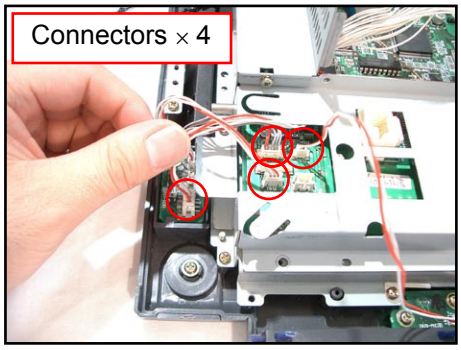




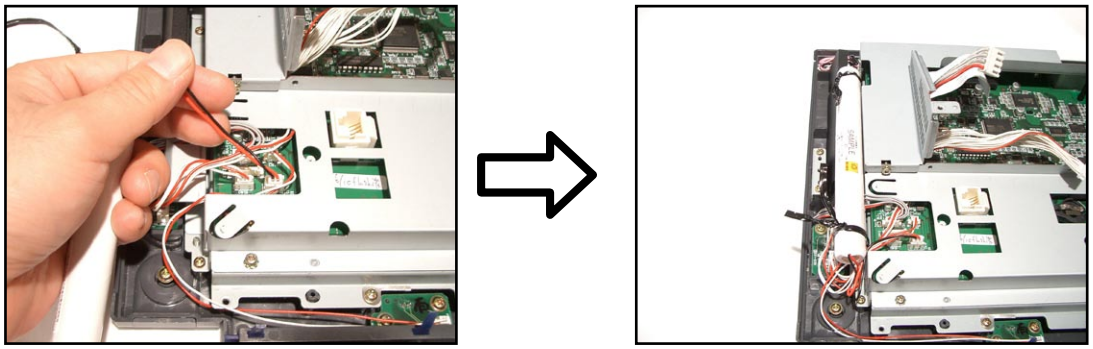
6. Fix the iron plate with twelve screws.



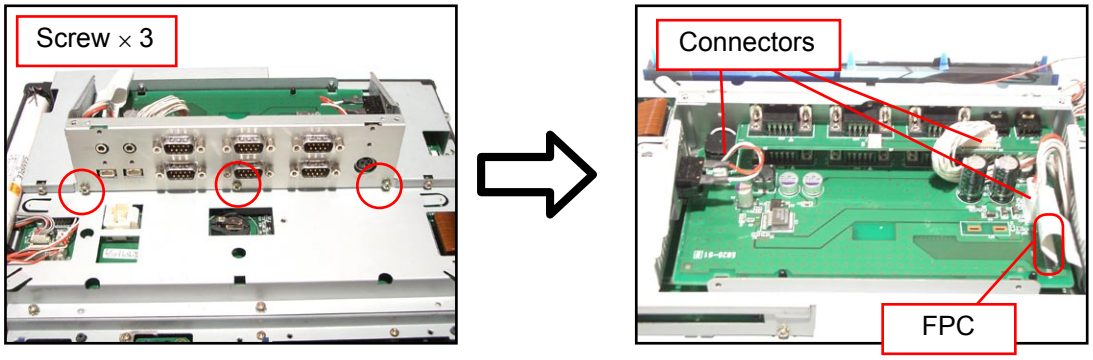
7. Connect four connectors.



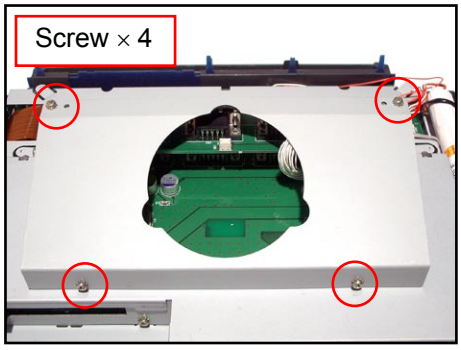
8. Connect the connector for the battery and assemble the battery.



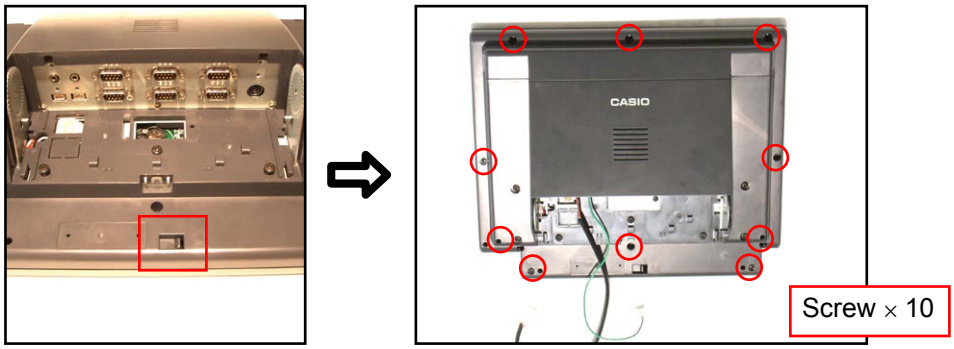
9. Assemble the IO Unit and fix it with three screws.
   Connect four connectors and one FPC.



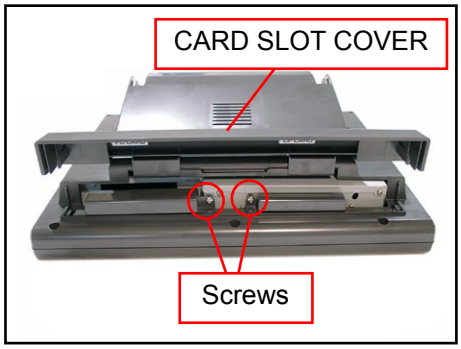
10. Fix the iron plate with four screws.

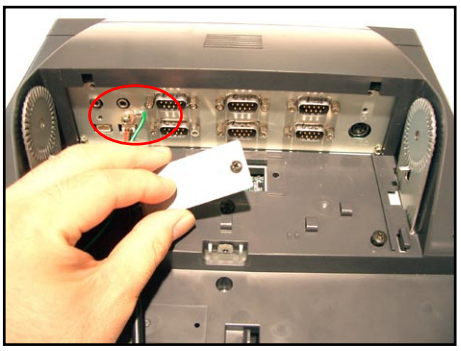


11. Assemble the REAR CASE.
    Hook the REAR CASE and fix it with ten screws.

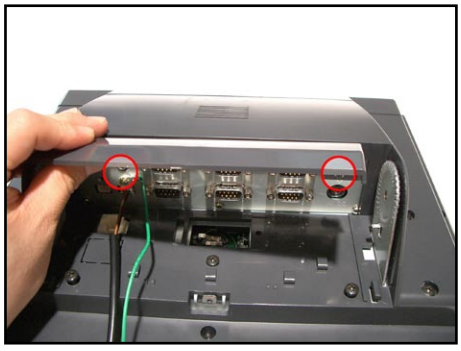


12. Fix the PC CARD and the CF CARD COVER.
    Fix the backup battery cover with one screw.
    Connect the DRAWER wiring (a cable and an earth).





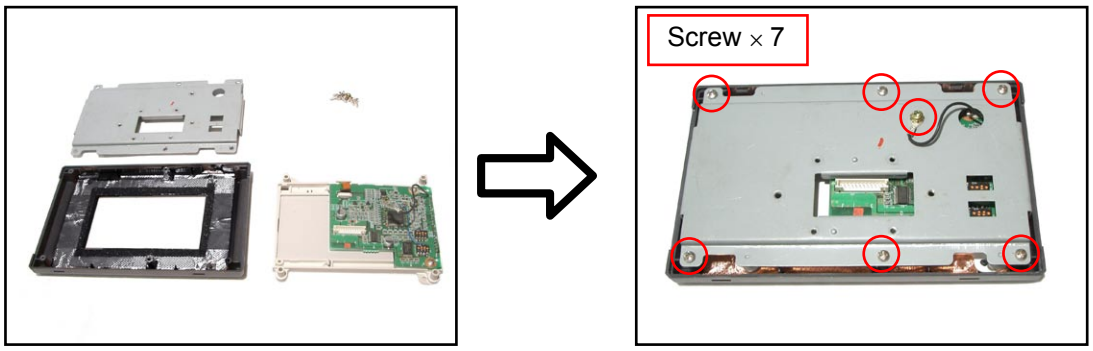
13. Fix the case with two screws.



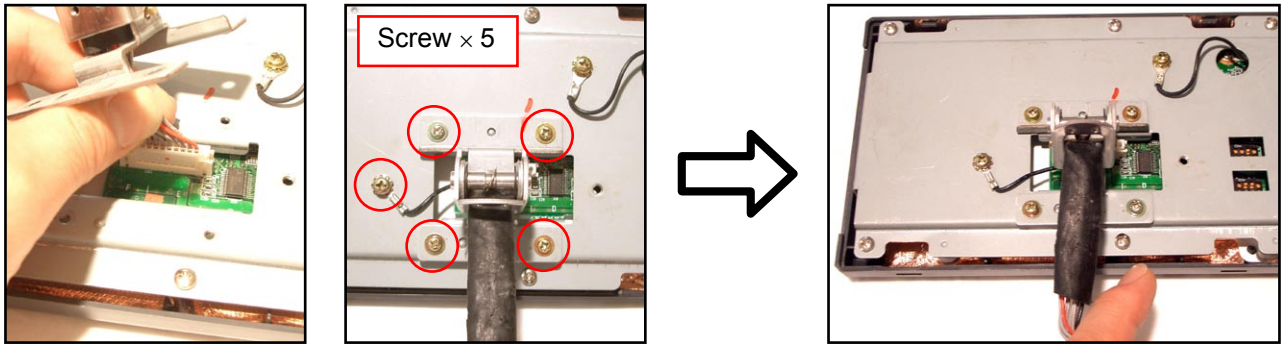
14. Fix the IP PORT COVER and the stand.

■ QT-6060D

1. Assemble the LCD Unit in the FRONT CASE with seven screws.

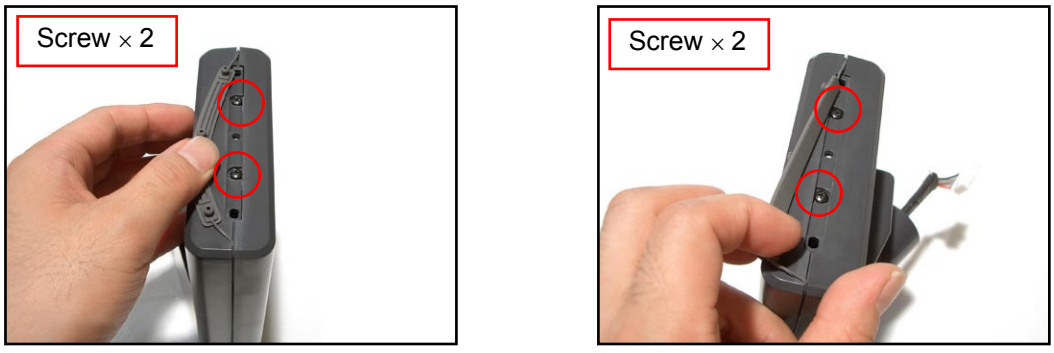


2. Connect the connector and fix the HINGE with five screws.

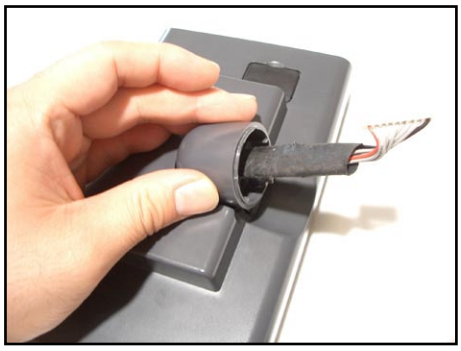


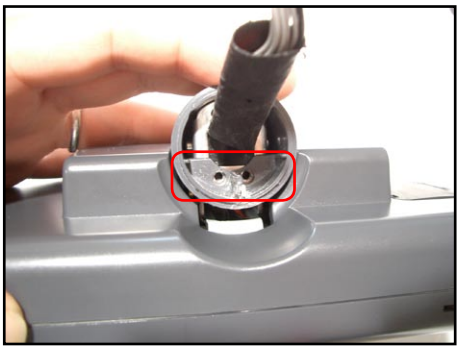
3. After fixing the packing to the REAR CASE, assemble the REAR CASE and the FRONT CASE.

4. Remove the LCD unit with four screws.
   Position: under both packing

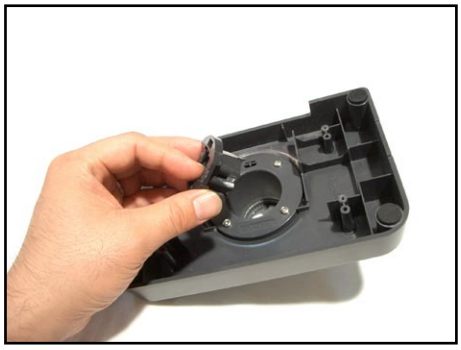


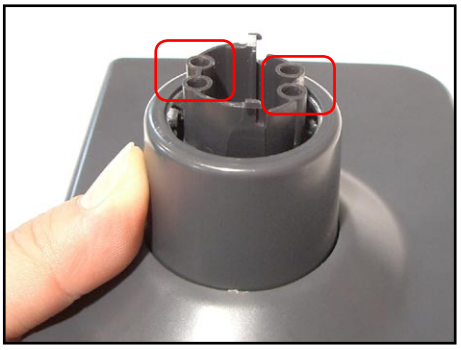
5. Fix the cap to the LCD Unit.
   Be careful with the position of the screw holes.



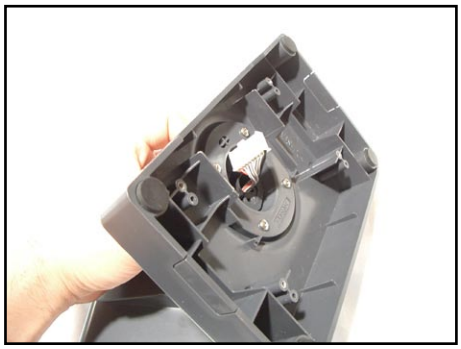


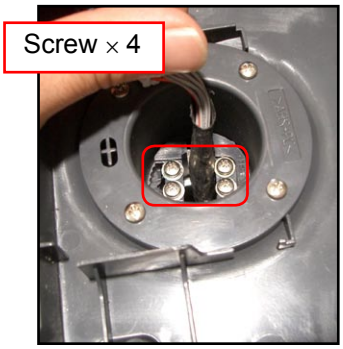
6. Fix the cap to the stand.
   Be careful with the direction of the cap. The height of the screw hole on the front side should be lower.



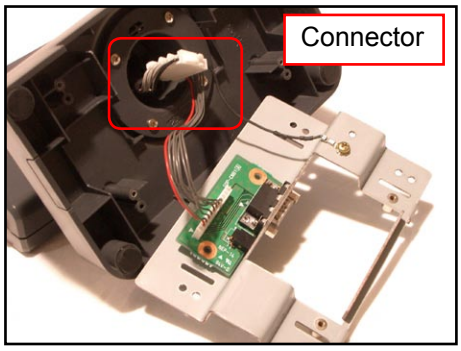


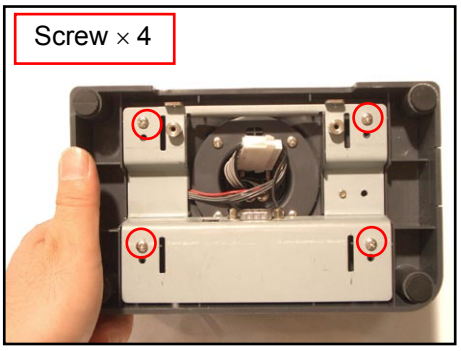
7. Let the connector through the cap and fix the LCD unit with four screws.





8. Connect the connector and fix the IO Unit with four screws.

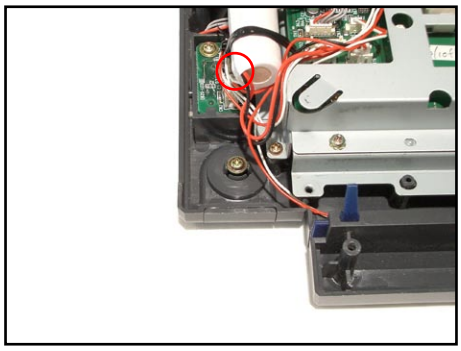


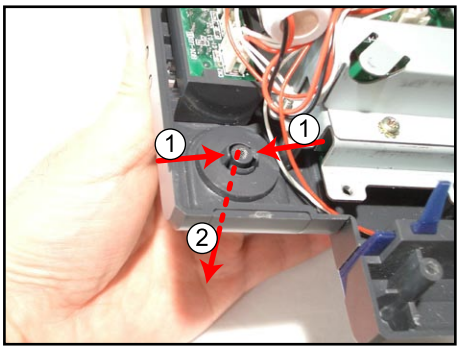


5. OPTION INSTALLATION

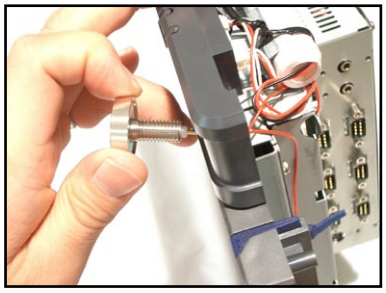
5-1. To install the I-Button

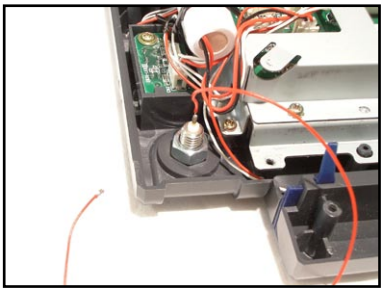
1. Remove the REAR COVER for QT-6100 (No.1 to No.10 in the disassembly procedure).
2. Remove one screw and then the I-Button cover.

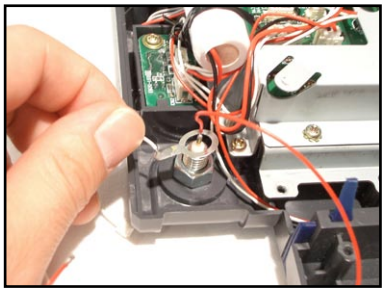




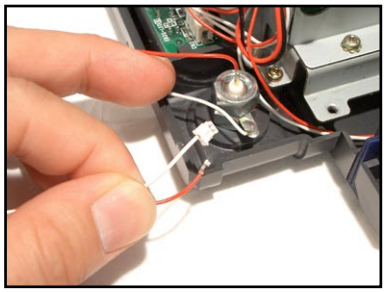
3. Insert the I-Button. ➞ Fix it with a nut. ➞ Insert the earth plate. ➞ Fix it with a nut.



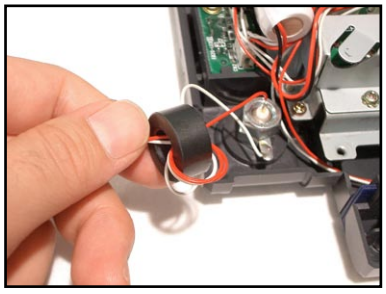


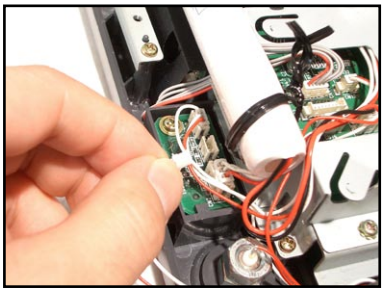


4. Assemble the lead wire (earth) into the connector.

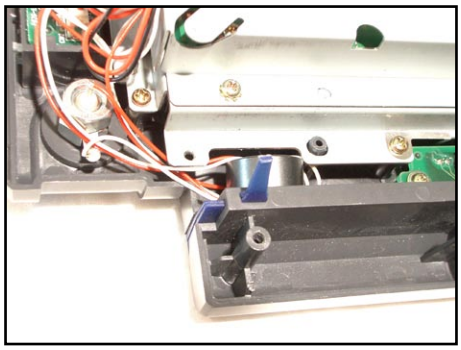


5. Wind the lead wire around the core twice, and then connect the core to the connector of the main unit.





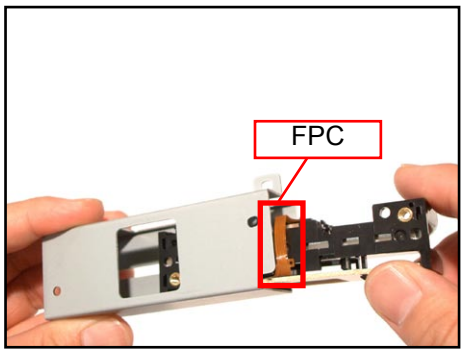
6. Store the core in the main unit, and then fix it with fabric tape.



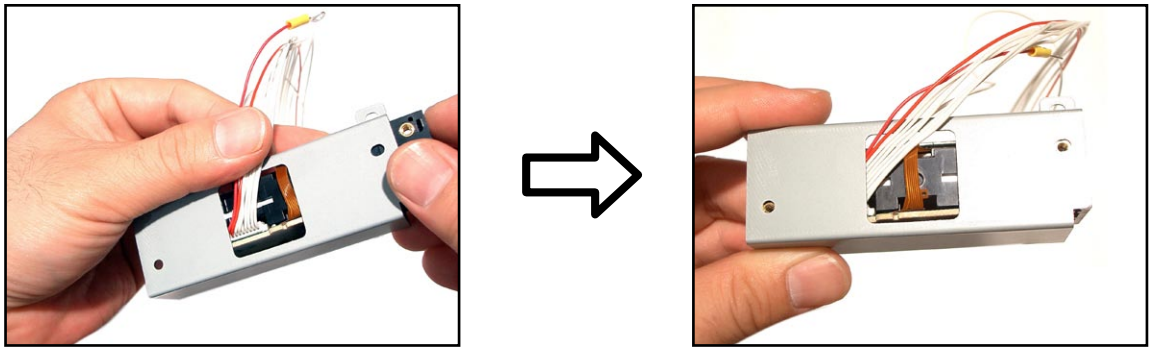
5-2. To install the MCR

1. Remove the REAR COVER for QT-6100 (No.1 to No.10 in the disassembly procedure).
2. Remove the packing from the main unit.

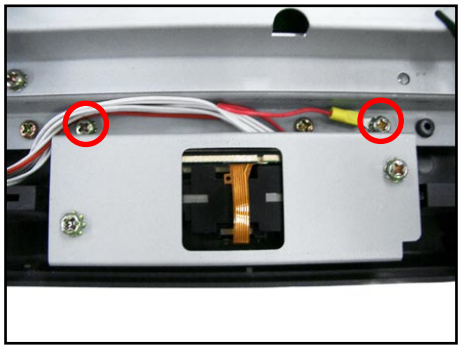
3. Insert the MCR into the special metal bracket.
   NOTE: Be careful not to damage the FPC.



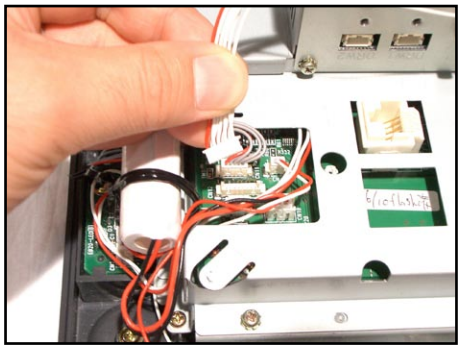
4. Connect the connector and fix the metal bracket with two screws.
   NOTE: The lead wires should be stored neatly in a line.

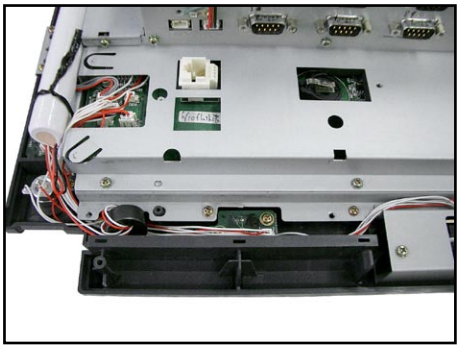


5. Fix the metal bracket to QT-6100 with two screws.



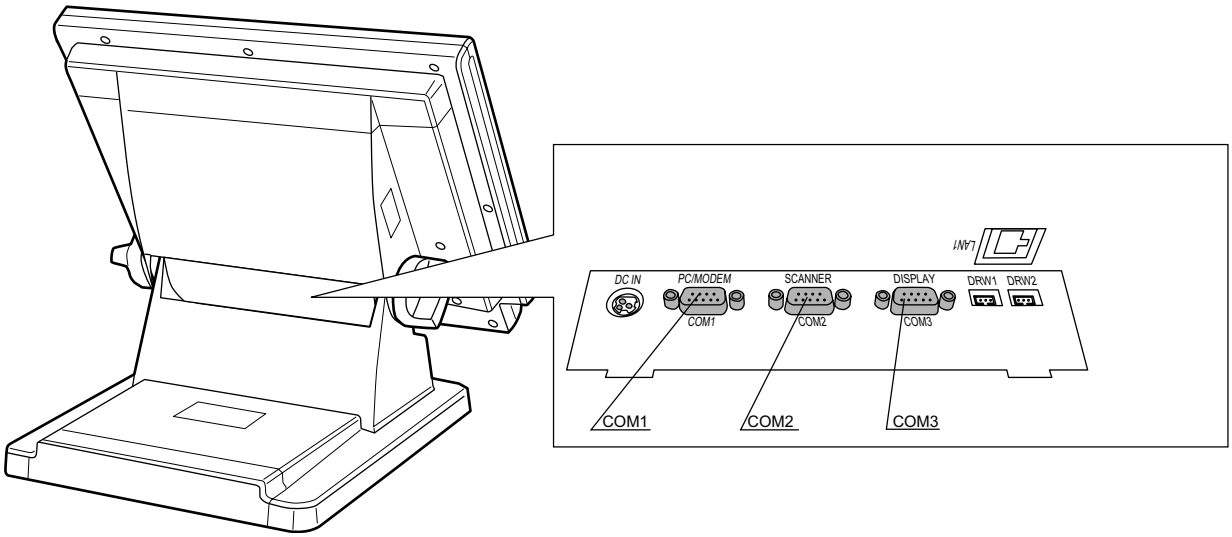
6. Connect the connector to QT-6100.
   NOTE: Arrange the cables so that they do not tangle with each other.





5-3. REMOTE PRINTER / SLIP PRINTER

Connect the following peripherals to the COM ports respectively.
REMOTE PRINTER: COM1, 2 or 3
SLIP PRINTER: COM2



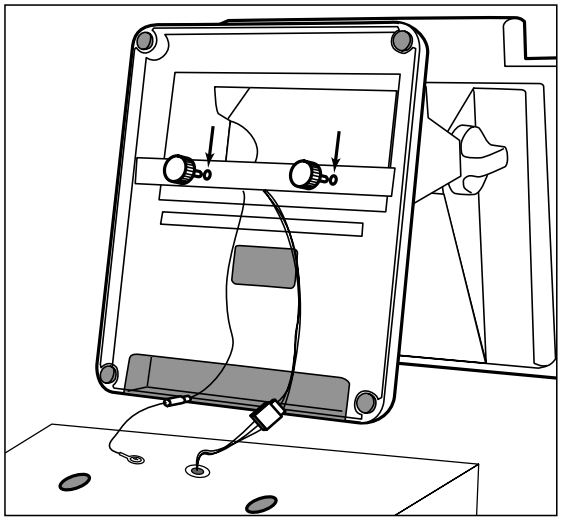
5-4. To install the DRAWER

In case of connecting drawer, follow the procedure below.

1. Connect drawer connector (three color lead on drawer) to the terminal.
2. Connect frame drawer connector (green lead on drawer) to the terminal.

Mount the cash register.

1. Screw in 2 fixing screws bottom side of the terminal.
2. Mount the terminal on the top of the drawer, ensuring that the feet on the bottom of the terminal go into the holes on the drawer.



6. IN LINE / OUT LINE

With the QT-6100, there are the following inline / online connectors in the rear side of the body.

6-1. Inline interface

The maximum inline cable length and the maximum connection unit will be varied by the inline communication speed as shown below figure.

- Using 10BASE-T

  Cable length: 100m (terminal to terminal, hub to terminal, hub to hub)

  Maximum 4 hubs in one cluster.

  Maximum cable length between terminal and terminal via hubs is 500m.

- Using 100Base-TX

  Cable length: 100m (terminal to terminal, hub to terminal, hub to hub)

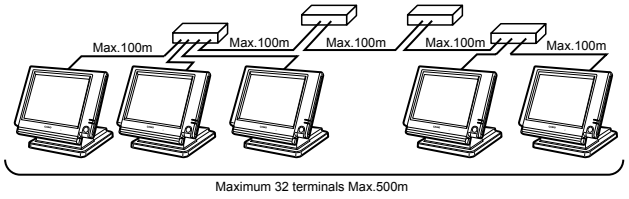
  Maximum 2 hubs in one cluster.

  Maximum cable length between terminal and terminal via hubs is 300m.

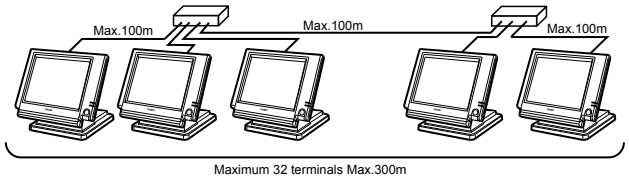
CAT5 cable specifications
CAT5 UTP Cable (Straight)
0.5mm x 4P Not shielded wire Twist pair cable

Configuration with Hub

• 10BASE-T



• 100BASE-TX



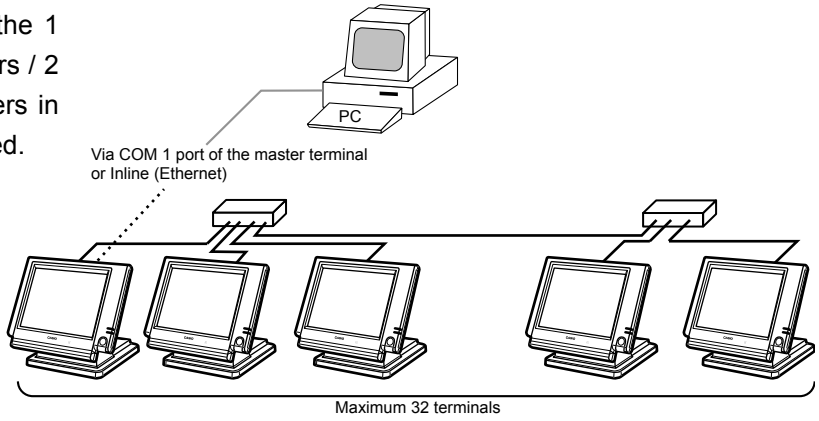
6-2. Online interface

Only the RS-232C Com1 port can be connected with a modem or perssonal computer.

Direct connection to PC

① Connection layout

Note: Maximum 3 remote printers in the 1 terminal system, 6 remote printers / 2 terminal system, 8 remote printers in the 3 ~ 32 terminal can be defined.



② PC Cable wiring

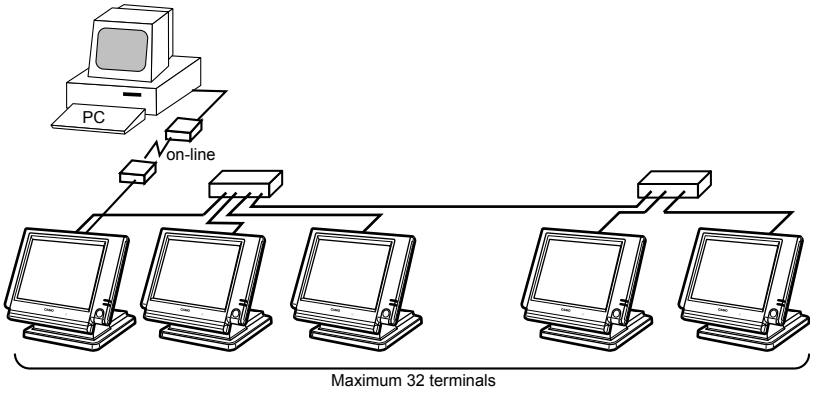
QT-6100 (Com1) — PC

Pin No.	Signal name	Pin No. (DSUB9)	Pin No. (DSUB25)	Signal name
3	SD/TXD	3	2	SD
2	RD/RXD	2	3	RD
7	RS/RTS	7	4	RS
8	CS/CTS	8	5	CS
1	CD/DCD	1	8	CD
4	ER/DTR	4	20	ER
6	DR/DSR	6	6	DR
9	CI/RI	-	22	C
5	GND	5	7	GND

MODEM system

① Connection layout

Note: Maximum 3 remote printers in the 1 terminal system, 6 remote printers / 2 terminal system, 8 remote printers in the 3 ~ 32 terminal can be defined.



② PC Cable wiring

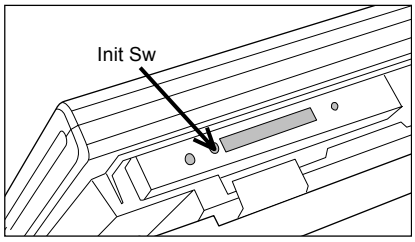
QT-6100 (Com1) — MODEM (DSUB25)

Pin No.	Signal name	Pin No.	Signal name
3	SD/TXD	2	SD
2	RD/RXD	3	RD
7	RS/RTS	4	RS
8	CS/CTS	5	CS
1	CD/DCD	8	CD
4	ER/DTR	20	ER
6	DR/DSR	6	DR
9	CI/RI	22	CI
5	GND	7	GND

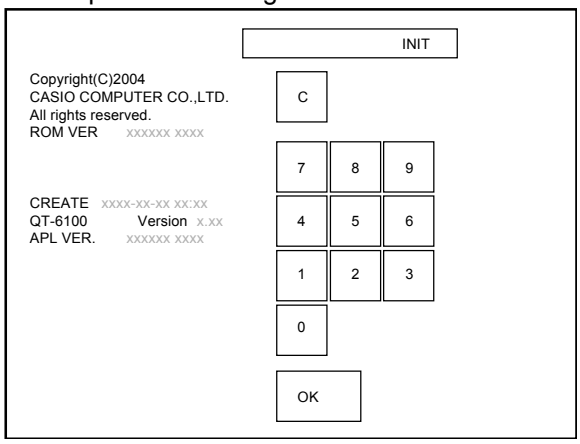
7. DIAGNOSTIC OPERATION

7-1. To start the diagnostic program

(1) Turn the power off.
(2) Turn the power on while pressing the INIT switch.



(3) Release the switch when the display shown below appears.
    * Operation is not guaranteed if the switch is released before the display appears.



(4) Enter 99990000 and then [OK].
(5) LCD calibration test starts automatically.
    Refer to "[12] LCD calibration test" for the operation details.

7-2. Notes for the DIAG

- Make sure the printer used to print out test results is set to a baud rate of 9600 bps and is connected to COM1.
- Perform testing by connecting HHS-15 to COM2.
- Always make sure to connect REMOTE DISP to COM3.
- When desiring to conduct a test for an unlimited number of times, enter a value other than 0 in accordance with the explanation for each test. Tests are performed for an unlimited number of times when a value of 1 through 9 is entered for the commend used to specify the number of times testing is performed in the operating procedure on each page. However, this function allows a test to only be performed once or for an unlimited number times.

[Procedure and Display for Operator-Evaluated Tests]

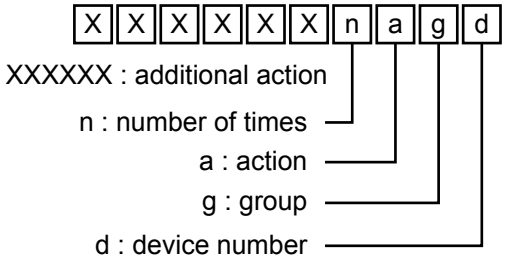
- In operator-evaluated tests, the results for that test are determined according to the OK and NG keys after the following display appears.
  [OK] key: Register 1 [NG] key: Register 9
- A display that excludes the following display is shown for the LCD display of each test.
  | Please Hit Key OK-> 1 NG-> 9 |

[Other]

* ESC printout and display contents for forced termination of a test by ESC are as shown below. This display and printout are omitted in each test.
  | ESC |
* That following printing of test results is omitted.

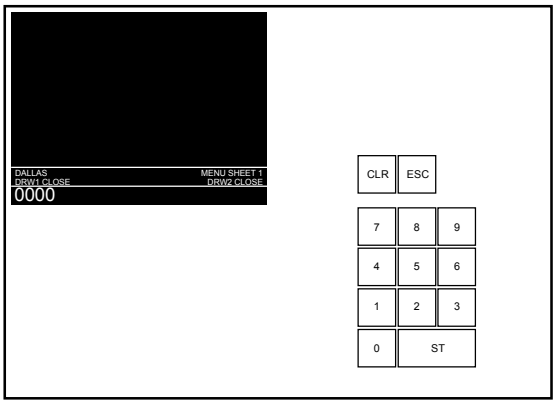
7-3. DIAG command input system

Input a command according to the following code.



7-4. Status Display

With the EX820, the following display is displayed on the LCD (SVGA). (In this DIAG, the display area is divided into a display for register entry and a display of DIAG results and so forth.

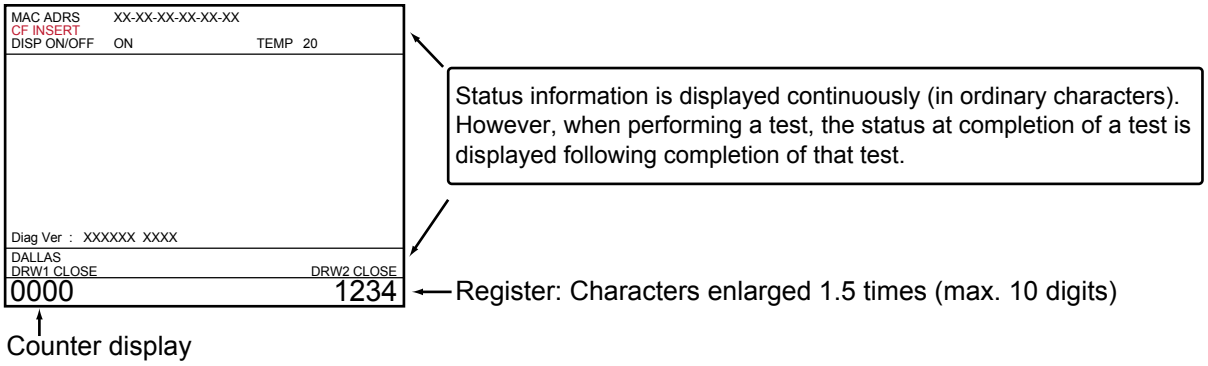


[Functions]

Status is displayed for those devices having status information. The devices and status displayed are as shown below.

Device	Status Information (Displayed Information)
Dallas key	Dallas key no.
Dallas key 2	Dallas key no.
Drawer	Open/close status
MAC address	MAC address
CF	Insertion status
DISP ON/OFF switch	Switch status
TEMP	Power supply A/D conversion value * Display only updated when DISP ON/OFF switch is ON

[LCD Display]


MAC ADRS XX-XX-XX-XX-XX-XX
CF INSERT
DISP ON/OFF ON TEMP 20
Diag Ver : XXXXXX XXXX
DALLAS
DRW1 CLOSE
DRW2 CLOSE
0000
1234
Status information is displayed continuously (in ordinary characters). However, when performing a test, the status at completion of a test is displayed following completion of that test.
Register: Characters enlarged 1.5 times (max. 10 digits)
Counter display

* Addition of TEMP information and DISP ON/OFF status
The TEMP status is acquired preferentially when the DISP ON/OFF switch is ON. When measuring other status information or when starting each test mode, always make sure to begin after switching off the DISP ON/OFF switch.

7-5. Check item

The following test can be checked in the diagnostic test.

No	Device to be checked	Operation	Note	Page
1	Batch test 1	2	Test Device : RAM, FLASH, Display, Print, Time, Drawer	32
2	Batch test 2	3	Test Device : Display, Back light	32
3	RAM WRITE/READ test	n011		33
4	RAM READ only test	n111		33
5	FLASH Check SUM test	n512		34
6	FLASH CLEAR/WRITE/READ test	n612		34
7	CF-CARD WRITE/READ test	pn013		35
8	CF-CARD READ only test	pn113		35
9	CF-CARD CLEAR test	pn213		36
10	CF-CARD CLEAR&WRITE/READ test	pn313		36
11	LCD test	n021		37
12	LCD calibration test	221		38
13	Back light OFF test	121		38
14	Remote Cust DISP test	bn023		39
15	External printer print test	x1x2x3n03d		40
16	RS232C PORT test	xn04d		41
17	RS232C PORT batch test	40		42
18	Ethernet test	m0a51		43
19	MAC Address SET	x0951		44
20	Time setting	x1x2x3x4x5x60a70		46
21	Time display	70		46
22	Drawer open test	xn091		46
23	Buzzer test	n092		47
24	OBR test	95		47
25	MCR test	96		48
26	Charging test	99		50

7-6. Operation of each test

[1] Batch test 1

[Function]

RAM test, FLASH test, display test, test print, time setting and drawer open test are performed continuously.

Make sure to connect the printer to COM1.

[Operation]

Refer to the page for the details of the following tests.

Operation : 2 ST

The following tests are performed automatically.

(1) RAM test : WRITE/READ all block test
(2) FLASH : Check SUM test
(3) Test print
(4) Times setting : Set the following data.
Arranged data : 2001 December 31, 23:59'30
(5) Drawer open : Opens all drawer.
Enters the wait mode for the input of [OK] or [NG] by the operator after drawer open.
(6) Receipt issuance

[LCD]

*When normally printed

BATC H	2
RAM WR	OK
FLASH CHK SUM	OK
DATE	01/12/31
TIME	23:59-30
Please Hit Key	OK->1 NG->9
DRW ALL	OK
END	2

[Print]

*When normally printed

BATC H	2	
RAM WR	OK	
FLASH CHK SUM	OK	
BBBBBBBBBBBBBBBBBBBB	*8,888,88	← Print Test
DATE	01/12/31	
TIME	23:59-30	
DRW ALL	OK	
END	2	

[2] Batch test 2

[Function]

LCD display test and backlight test are performed continuously.

[Operation]

Refer to the page for the details of the following tests.

Operation : 3 ST

The following tests are performed automatically.

(1) LCD test :
Enters the wait mode for the input of [OK] or [NG] by the operator after the test.
"OK" = 1, "NG" = 9
(2) Backlight OFF test :
Turns the backlight off.
Enters the wait mode for the input of [OK] or [NG] by the operator after the backlight turns off.
*Since the backlight is turned off, "Please Hit Key..." cannot be seen.
"OK" = 1, "NG" = 9
(3) Receipt issuance

[LCD]

*When normally printed

BATCH	3	
Please Hit Key	OK->1 NG->9	← Waiting for the input of [OK] or [NG] for the LCD test.
LCD	OK	
Please Hit Key	OK->1 NG->9	← Waiting for the input of [OK] or [NG] for the backlight. * When this appears, the backlight is turned off.
BACK LIGHT	OK	
END	3	

[Print]

*When normally printed

BATC H	3
LCD	OK
BACK LIGHT	OK
END	3

[3] RAM WRITE/READ test

[Function]

WRITE/READ test for RAM is performed.
A counter is displayed for RAM test as follows.

[Operation]

Operation : [n] [0] [1] [1] [ST]

n: 0→1 = One time check (can be omitted)
not 0 = Continuous check (To stop the test, press "ESC" key)

[LCD]

```
RAM          n011
RAM WR         OK
END          n011
```

NOTE: Prints the address of the error in case the test ended with an error.

[PRINT]

```
RAM          n011
RAM WR         NG
END          n011
```

Prints the address of the error in case the test ended with an error.

[4] RAM READ ONLY test

[Function]

READ ONLY test for RAM is performed
Note that WRITE test (n011) must be performed right before this test.

[Operation]

Operation : [n] [1] [1] [1] [ST]

n: 0→1 = One time check (can be omitted)
not 0 = Continuous check (To stop the test, press "ESC" key)

[LCD]

```
RAM          n111
RAM RD         OK
END          n111
```

NOTE: Prints the address of the error in case the test ended with an error.

[PRINT]

```
RAM          n111
RAM RD         OK
END          n111
```

Prints the address of the error in case the test ended with an error.

[5] FLASH Check SUM test

[Function]

This test will check SUM test for FLASH is performed.

[Operation]

Operation : n 5 1 2 ST

n: 0→1 = One time check (can be omitted)
not 0 = Continuous check (To stop the test, press "ESC" key)

[LCD]

```
FLASH            512
FLASH CHK SUM    OK
END              512
```

[PRINT]

```
FLASH            512
FLASH CHK SUM    OK
END              512
```

[6] FLASH CLEAR WRITE/READ test

[Function]

The CLEAR & WRITE/READ test for FLASH is performed.
After deleting the memory by CLEAR, WRITE/READ test is performed.
Note: since this test cannot backup the program, you need to perform IPL again after the test.
When the memory in the FLASH memory is cleared (by the CLEAR test), the program is cleared also.

[Operation]

Operation : n 6 1 2 ST

n: 0→1 = One time check (can be omitted)
not 0 = Continuous check (To stop the test, press "ESC" key)

[LCD]

```
FLASH                 612
FLASH WR ERASE PGM    OK
END                   612
```

NG and the address are displayed if WRITE cannot be done normally.

[PRINT]

```
FLASH                 612
FLASH WR ERASE PGM    OK
END                   612
```

NG and the address are printed if WRITE cannot be done normally.

[7] CF-CARD WRITE/READ test

[Function]

This test will check the write/read test (connection test) for CF-CARD.
Perform the CF-CARD clear test, before start of this test.
Note that this test does not ensure the data inside the CF-CARD as well as its performance.

[Operation]

Operation : | p | | n | | 0 | | 1 | | 3 | | ST |

p : designates PCMCIA SLOT
0 = CF
1 = PCMCIA

n: 0 = One time check (can be omitted)
not 0 = Continuous check (To stop the test, press "ESC" key)

[LCD]

```
CF-CARD      pn013
CF WR        OK
END          pn013
```

NG and the address are displayed if WRITE cannot be done normally.

[PRINT]

```
CF           pn013
CF WR        OK
END          pn013
```

NG and the address are printed if WRITE cannot be done normally.

[8] CF-CARD READ ONLY test

[Function]

This test will check the read only test for CF-CARD.
Perform the CF-CARD write test, before start of this test.
Note that this test does not ensure the data inside the CF-CARD as well as its performance.

[Operation]

Operation : | p | | n | | 1 | | 1 | | 3 | | ST |

p: designates PCMCIA SLOT
0 = CF
1 = PCMCIA

n: 0 = One time check (can be omitted)
not 0 = Continuous check (To stop the test, press "ESC" key)

[LCD]

```
CF-CARD      pn113
CF RD        OK
END          pn113
```

NG and the address are displayed if READ cannot be done normally.

[PRINT]

```
CF-CARD      pn113
CF RD        OK
END          pn113
```

NG and the address are printed if WRITE cannot be done normally.

[9] CF-CARD CLEAR test

[Function]

This test will check the clear test for CF-CARD.
Note that this test does not ensure the data inside the CF-CARD as well as its performance.

[Operation]

Operation : | p | n | 2 | 1 | 3 | ST |

p: designates PCMCIA SLOT
0 = CF
1 = PCMCIA

n: 0 = One time check (can be omitted)
not 0 = Continuous check (To stop the test, press "ESC" key)

[LCD]

```
CF-CARD        pn213
CF CLR         OK
END            pn213
```

NG and the address are displayed if CLEAR cannot be done normally.

[PRINT]

```
CF-CARD        pn213
CF CLR         OK
END            pn213
```

NG and the address are printed if WRITE cannot be done normally.

[10] CF-CARD CLEAR WRITE/READ test

[Function]

The CLEAR & WRITE/READ test for CF-CARD is performed.
After deleting the memory by CLEAR, WRITE/READ test (connection test) is performed.
Note that this test does not ensure the data inside the CF-CARD as well as its performance.

[Operation]

Operation : | p | n | 3 | 1 | 3 | ST |

p: designates PCMCIA SLOT
0 = CF
1 = PCMCIA

n: 0 = One time check (can be omitted)
not 0 = Continuous check (To stop the test, press "ESC" key)

[LCD]

```
CF-CARD        pn313
CF CLR&WR      OK
END            pn313
```

NG and the address are displayed if WRITE cannot be done normally.

[PRINT]

```
CF-CARD        pn313
CF CLR&WR      OK
END            pn313
```

NG and the address are printed if WRITE cannot be done normally.

[11] LCD test

[Function]

This test will check the LCD display.

In case of one time check only, the test can be ended by the judgment (OK or NG) of the operator.

The display can be switched by the touch of the panel. The display will not change to the next one unless the panel is touched.

[Operation]

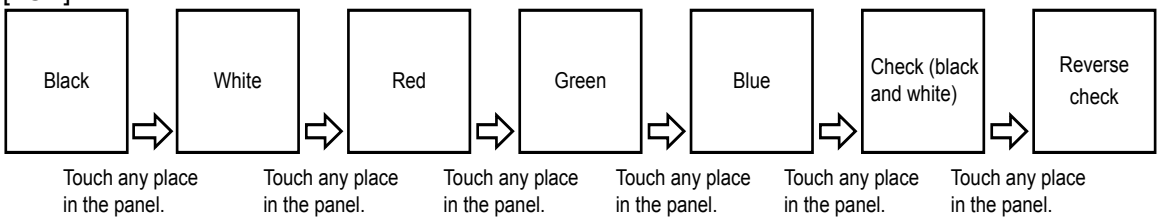
Press [OK] key or [NG] key to end the test when performing one time check.

"OK" = 1, "NG" = 9

Operation : | n | 0 | 2 | 1 | ST |

n: 0 = One time check (can be omitted)
not 0 = Continuous check (To stop the test, press "ESC" key)

[LCD]



Shows the following colors and patterns in the display in the order of black, white, red, green, blue, check and reverse check.

Returns to the normal display after the test, and waits for the input of [OK] or [NG] by the operator (in case of one time check).

In case of continuous check, the test is ended manually upon the input of [ESC] key.

```
LCD             n021
LCD             OK
END             n021
```

[PRINT]

```
LCD             n021
LCD             OK
END             n021
```

[12] LCD calibration test

[Function]

This will test the calibration of the LCD (touch panel).

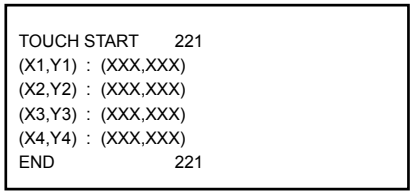
* Perform the calibration in the diagnostic mode even when the product is in the market. Make sure to backup the register data when necessary.

[Operation]

A cross appears at the following four coordinates in the panel one by one. When a cross at a certain coordinate is touched, the next coordinate will show another cross there.
(X,Y) = (100,100), (100,500), (700,100), (700,500)

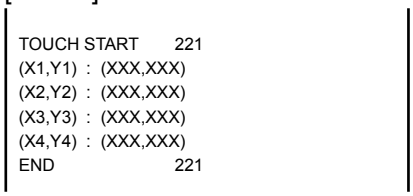
Operation : 2 2 1 ST

[LCD]



Displays data 1 for calibration
Displays data 2 for calibration
Displays data 3 for calibration
Displays the position of the forth coordinate (performs calibration)

[PRINT]



[13] LCD Backlight OFF test

[Function]

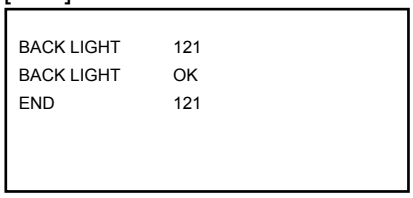
This is a test for the LCD backlight.
The test ends upon judgment of the operator between [OK] and [NG].

[Operation]

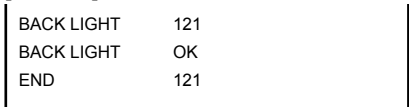
Press [OK] key or [NG] key to end the test when performing one time check.
"OK" = 1, "NG" = 9

Operation : 1 2 1 ST

[LCD]



[PRINT]



[14] Remote Cust DISP test

[Function]

This test will check whether REMOTE DISP can be displayed.
Make sure to connect REMOTE DISP to COM3.
In case of one time check only, the test can be ended by the judgment (OK or NG) of the operator.
Pastel green (white plus green) appears as the backlight, which turns off upon the end of the test.
* When changing the baud rate, make sure to change the REMOTE DISP setting.

[Operation]

Press [OK] key or [NG] key to end the test when performing one time check.
"OK" = 1, "NG" = 9

Operation : | b | n | 0 | 2 | 3 | ST |

b: Baud rate selection
0 = 19.2 Kbps, 1 = 9600 bps
n: 0 = One time check (can be omitted)
not 0 = Continuous check (To stop the test, press "ESC" key)

When performing continuous check, the same test character data is sent at a certain interval. When the test is ended manually upon the input of [ESC] key, the display is cleared and the backlight turns off.
In case of one time check, the display is cleared and the backlight turns off after the judgment ([OK] or [NG]) of the operator.

[LCD]

```
REMOTE DISP     na23
REMOTE DISP     OK
END             na23
```

[REMOTE DISP]

```
ABCDEFGHIJKLMNOP
QRSTUVWXYZabcdef
0,1,2,3,4,5,6,7,8,9,
```

[PRINT]

```
REMOTE DISP     na23
REMOTE DISP     OK
END             na23
```

[15] External printer print test

[Function]

This test will check the print test for the RS232C I/F printer.
Connect the printer to the COM which is to be tested.

[Operation]

Operation : | x1 | x2 | x3 | n | 0 | 3 | d | ST |

X1: Print test pattern (0 = A pattern, 1 = B pattern)
X2: Port selection (1 = COM1, 2 = COM2, 3 = COM3)
X3: Baud rate selection (1 = 4800 bps, 2 = 9600 bps, 3 = 19.2 kbps)
n: 0 = One time check (can be omitted)
not 0 = Continuous check (To stop the test, press "ESC" key)
d: Printer type selection (1 = RJ, 2 = SLIP)

Note that some printers cannot use certain baud rates. Refer to the list below.
When changing the baud rate, make sure to change the setting for the printer also.

	19.2 Kbps	9600 bps	4800 bps
SLIP PRINTER (SP1300)	×	○	○
RJ PRINTER (UP250/350/360)	○	○	○

[LCD]

```
PRT          xxxn03d
END          xxxn03d
```

Error display
When the printer is not connected

```
NON PRINTER ERR
```

[PRINT]

Printing pattern is the following 2 types.
The number of lines : 40 lines for RJ and 35 lines for SLIP.

```
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
```

A pattern

```
BBBBBBBBBBBBBBBBBBBB      *8,888,88
```

B pattern

[16] RS232C PORT test

[Function]

This is the RS232C test.
The loop back test for RS232C port is performed by making the connection shown in the figure.
Refer to [17] RS232C PORT batch test the figure for RS232C port connection.

[Operation]

Operation : | x | | n | | 0 | | 4 | | d | | ST |

x: Baud rate selection
0 = 2400 bps, 1 = 4800 bps, 2 = 9600 bps, 3 = 19.2 kbps, 7 = 115 kbps (COM 1 only)

n: 0 = One time check (can be omitted)
not 0 = Continuous check (To stop the test, press "ESC" key)

d: Port selection
1 = COM1, 2 = COM2, 3 = COM3

[LCD]

```
COM                    41
RTS1=1 → CTS1=1        OK
DTR1=1 → DSR1=1        OK
DTR1=1 →  CD1=1        OK
DTR1=1 →  CI1=1        OK   ← Displays only COM1
RTS1=0 → CTS1=0        OK   ← Displays only COM1
DTR1=0 → DSR1=0        OK
DTR1=0 →  CD1=0        OK   ← Displays only COM1
DTR1=0 →  CI1=0        OK   ← Displays only COM1
TxD    →    RxD        OK
END                    41
```

[17] RS232C PORT batch test

[Function]

This is the RS232C port batch test.
The loop back test for RS232C port is performed by making the connection shown in the figure.
The loop back test is performed from COM1 to COM 3 by the following setting by one time check.
When performing this test, fix loop back connectors to all COM ports.

[Operation]

Operation : | 4 | | 0 | | ST |

Baud rate: COM1: 115 kbps, COM 2 - 6 : 9600 bps
Check time: one time

[LCD]

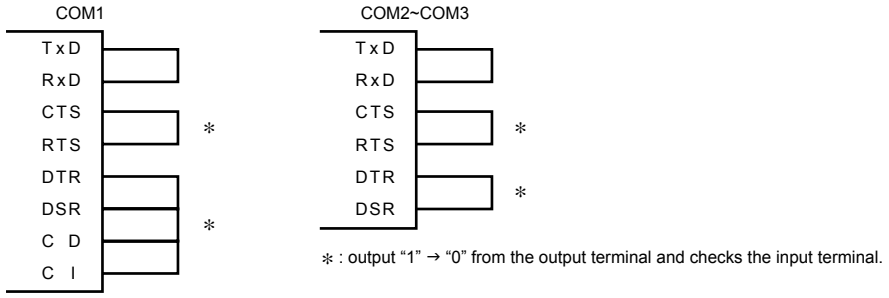
```
COM BATCH              40
RTS1=1 → CTS1=1        OK
DTR1=1 → DSR1=1        OK
DTR1=1 →  CD1=1        OK
DTR1=1 →  CI1=1        OK
RTS1=0 → CTS1=0        OK
DTR1=0 → DSR1=0        OK
DTR1=0 →  CD1=0        OK
DTR1=0 →  CI1=0        OK
TxD    →   RxD         OK
RTS2=1 → CTS2=1        OK
DTR2=1 → DSR2=1        OK
DTR2=0 →  CD2=0        OK
DTR2=0 →  CI2=0        OK
TxD    →   RxD         OK
          .
          .
          .
END                    40
```

COM 1 test result

COM 2 test result

The same display for COM2 appears for COM3.
Note that the actual display shows only a part of the results (not the whole as shown in the left).

Figure : RS232C port connection



[18] Ethernet test

[Function]

This test will check the counter-communication of Ethernet.
Always make the receive ECR in the wait mode first and then send data from the send ECR.
The counter of the number of successful/failed communication to the LCD is displayed after the communication normally starts. It is printed after the test.
NOTE: Please use the Hub or the crossing cable for connection between the receive ECR and the send ECR.

* Send/receive data

SID	DID	LEN	DATA 00h~FFh, 00h~FBh	LRC

508 byte

1. TCP mode
   Counter-communication test by the TCP protocol with error control
2. UDP mode
   Counter-communication test by the UDP protocol without error control
   In both TCP and UDP modes, when the receive ECR (a=2 below) receives the data normally, the test checks the received data, reverses the received data (FBh -10h, 00h, FFh-00h), and sends back the data to the send ECR (a=1). The send ECR checks the reversed data (The same repeats hereinafter).
   Also, when the receive ECR (a=4) receives the data normally, the test checks only the received data.
   The send ECR (a=3) waits for one second and starts sending data again (the same repeats hereinafter).

[Operation]

* Once an ID is set, make sure to perform the test using this ID. When changing the ID.

m	0	a	5	1	ST

m: Own ID (as for the designated ID, refer to "About ID")
a: 1 → TCP send mode 2 → TCP receive mode 3 → UDP send mode
4 → UDP receive mode
Continue the test unless an error occurs.
End the test manually by pressing [ESC] (end the send ECR first.).

* About ID

ID is effective in the range from 1 through 9. A value which is not in this effective range will be changed to 1, and converted as follows.
The upper part of the IP address is fixed as "192.168.0", and the last address is the ID.
Example: ID=1 → IP address = 192.168.0.1, ID=9 → IP address = 192.168.0.9
The ID is always 192.168.1.10 in the receive mode. The send mode sends data to this fixed 192.168.0.10.

[LCD]

```
ETHERNET        m0a51
TCP MODE
OK xxxx  NG xxxx
END             m0a51
```

← Mode display ("UDP MODE" appears for UDP mode)

* In both TCP and UDP modes, the number of successful/failed communication is displayed.
  Each success counts up the success counter, while each failure counts up the failure counter.

[PRINT]

```
ETHERNET        m0a51
TCP MODE
OK xxxx  NG xxxx
END             m0a51
```

← Mode display ("UDP MODE" appears for UDP mode)
← Prints the number of successful and failed communication upon the end of the test

[19] MAC (Media Access Control) Address SET

[Function]

This test will write the MAC address.

[Operation]

* Once an ID is set, make sure to perform the test using this ID. When changing the ID, turn the power on again.

x	0	9	5	1	ST

x : Writing the address

1 : Writes the address by manually writing the MAC address

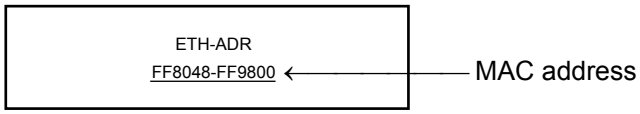
In the manual input mode, the test enters the wait mode for the input of MAC address. The address can be inputted in 8 bit. Inputting three-digit decimal and the [ST] key determines 8 bits. Performing this operation for 48 bits (6 times) inputs a 48-bit address, and the sixth input of [ST] writes the address. The address inputted in the number display position in 8 bit is then displayed in hexadecimal. The inputted address is cleared by the input of [CLEAR]. The test ends without writing an address by the input of [ESC].

* when writing MAC address "FF8048FF9800"

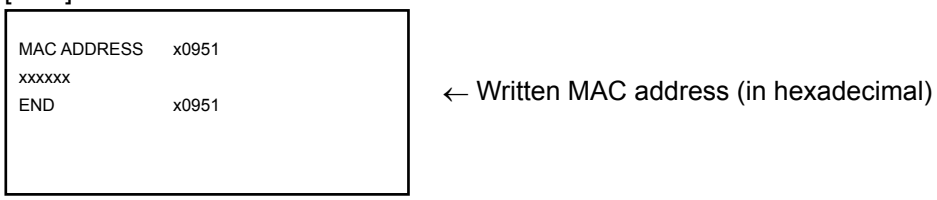
After entering the manual writing mode, the above address can be written by the input of the following: numbers "255" + [ST] → "128" + [ST] → "072" + [ST] → "255" + [ST] → "152" + [ST] → "000" + [ST] .

NOTE: When you replace the EEPROM(IC35) with new one, please input the MAC address to the new EEPROM by using this test.
The MAC address is described on the Main PCB.

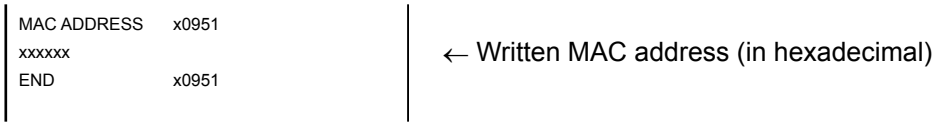
[Sticker on the Main PCB]



[LCD]



[PRINT]



[20] Time setting / [21] Time display

[Function]

This sets the time and date.

When setting the time, the time and date will be displayed without inputting the fixed value.

[Operation]

* Date and time setting

Operation : | x1 | x2 | x3 | x4 | x5 | x6 | 0 | a | 7 | 0 | ST |

a: 0: time setting x1/x2: time, x3/x4: minutes, x5/x6: second
1: time setting x1/x2: year, x3/x4: month, x5/x6: day
The test will be done one time.

* Date and time display

Operation : | 7 | 0 | ST |

To stop the operation, press "ESC" key.

[LCD]

DATE/TIME	70
DATE/TIME	YY/MM/DD HH:MM-SS
END	70

Each data will be printed only when setting the date and time.

[PRINT]

DATE/TIME	YYMMDD0170
DATE	YY/MM/DD
END	YYMMDD0170

[22] Drawer open test

[Function]

This test will check the drawer open function. The test ends by the judgment of the operator either by OK or NG only when the one time check is selected.

[Operation]

Operation : | x | n | 0 | 9 | 1 | ST |

x: 0 = All drawers open (can be omitted), 1 = Drawer 1 open, 2 = Drawer 2 open

n: 0 = One time check (can be omitted)
not 0 = Continuous check (To stop the test, press "ESC" key)

* When the continuous check is selected, the drawer opens every 2 seconds.
* The following "OK" or "NG" key can be used in case of one time check.
"OK" = 1, "NG" = 9

[LCD]

The status signal from the drawers appears in the status display position of the LCD.

In case of continuous check as well as when all drawers are open, the status appears after all the drawers open.

DRW	xn091
DRW ALL	OK
END	xn091

[PRINT]

DRW	xn091
DRW ALL	OK
END	xn091

[23] Buzzer test

[Function]

This test will check the buzzer function.
Ring the one-shot buzzer.

[Operation]

Operation : | n | 0 | 9 | 2 | ST |

n: 0 = One time check (can be omitted)
not 0 = Continuous check (To stop the test, press "ESC" key)

[LCD]

```
BUZZ        n092
END         n092
```

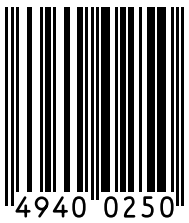
[PRINT]

```
BUZZ        n092
END         n092
```

[24] OBR test

[Function]

This is a scanner test. The test enters the wait mode for the scanner input, and waits only for scanner.
The test determines the result between OK and NG by comparing the fixed data and the read data.
Make sure to connect OBR (HHS-15) to COM 2.
* The fixed barcode is as follows.



[Operation]

Operation : | 9 | 5 | ST |

To stop the test, press "ESC" key.

[LCD]

```
OBR         95
OBR         OK
OBR ERR     xxxxxxxxxxxxxx
END         95
```

[PRINT]

```
OBR         95
OBR         OK
OBR ERR     xxxxxxxxxxxxxx
END         95
```

[25] MCR test

[Function]

This is a card reader (MCR) test. The test enters the wait mode for only MCR input.
The test judges the result between OK and NG by the comparison between already set data and read data.

[Operation]

Operation : 9 6 ST

Press [ESC] key to end the test manually.

[LCD]

MCR1 indicates track 1 while MCR2 indicates track 2 in the display.

* Normally ended (both track 1 and 2)

```
MCR          96
MCR1         OK
MCR2         OK
END          96
```

OK when the read data is correct.

* Error example

• The display shows error when the track 1 has an error.
The read data is displayed.

```
MCR1 ERR     **************************
******************************
```

• The track 1 ended normally. Only the track 2 has an error.
Only the data read in the track 2 is displayed.

```
MCR2 ERR     **************************
**************
```

[PRINT]

```
MCR          96
MCR1         OK
MCR2         OK
END          96
```

[26] Charging test

[Function]

This test will turn off the charging function.

[Operation]

Operation : | 9 | | 9 | | ST |

[LCD]

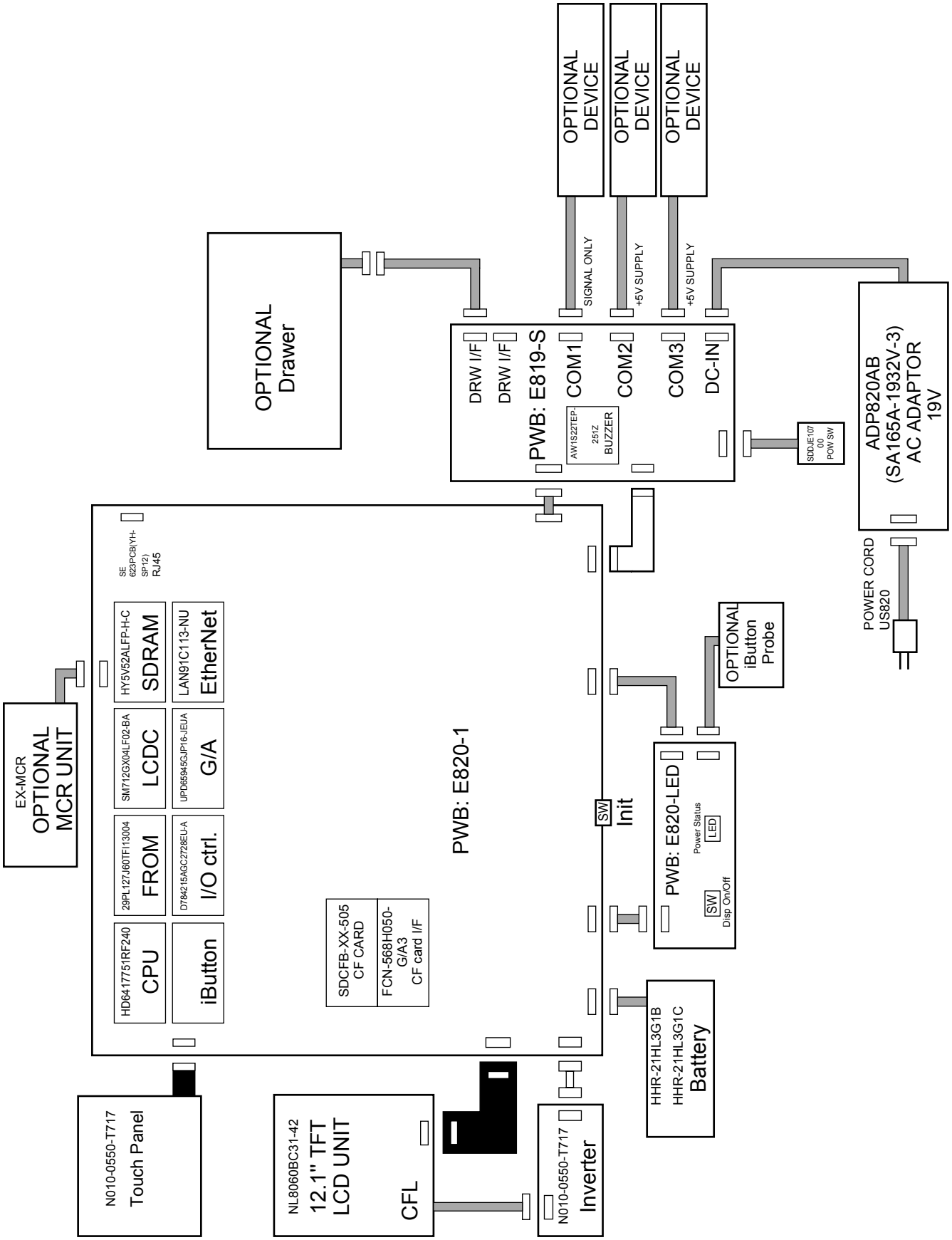
```
CAHRGE OFF      99
END             99
```

[Print]

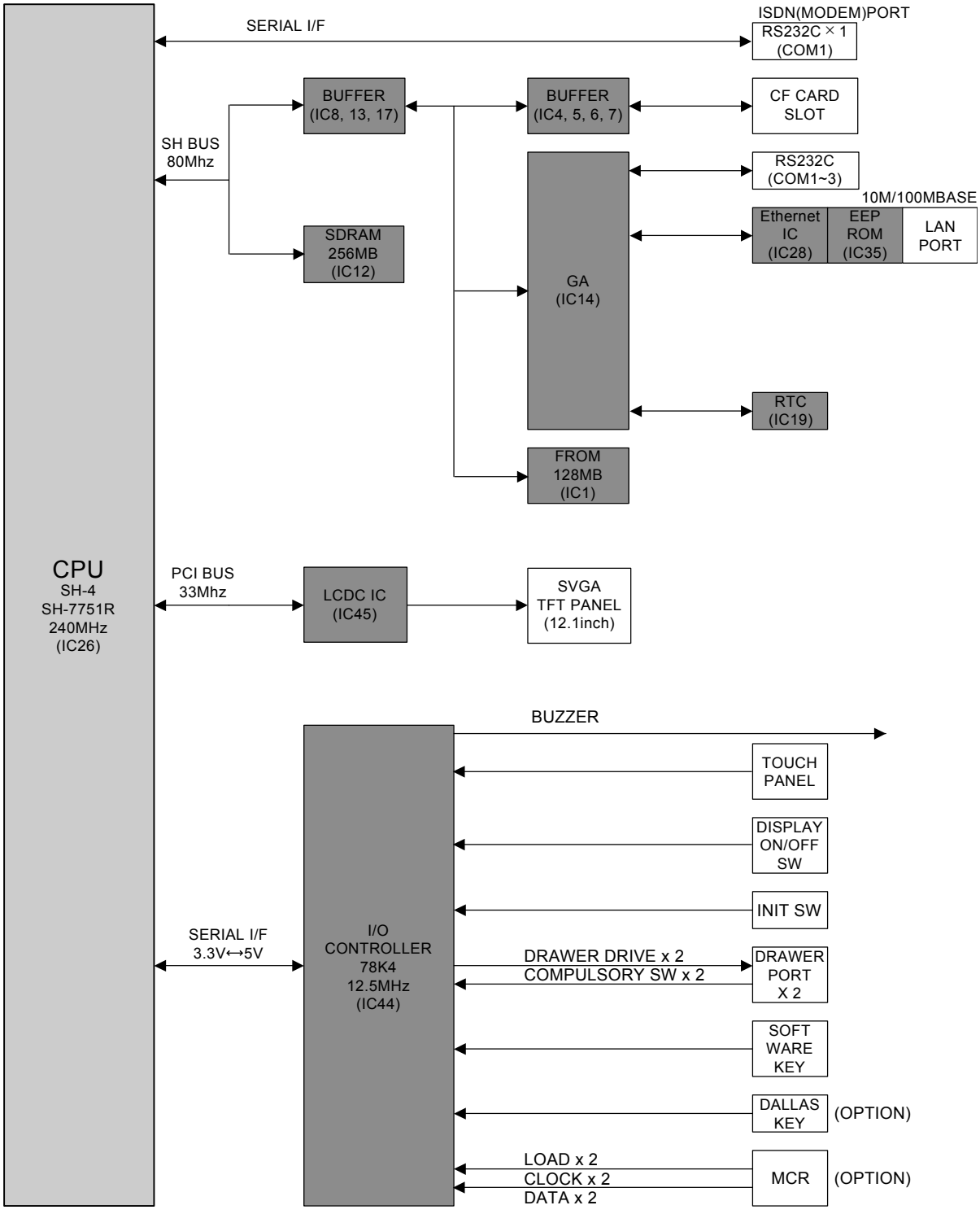
```
CAHRGE OFF      99
END             99
```

8. CIRCUIT EXPLANATION

8-1. BLOCK DIAGRAM

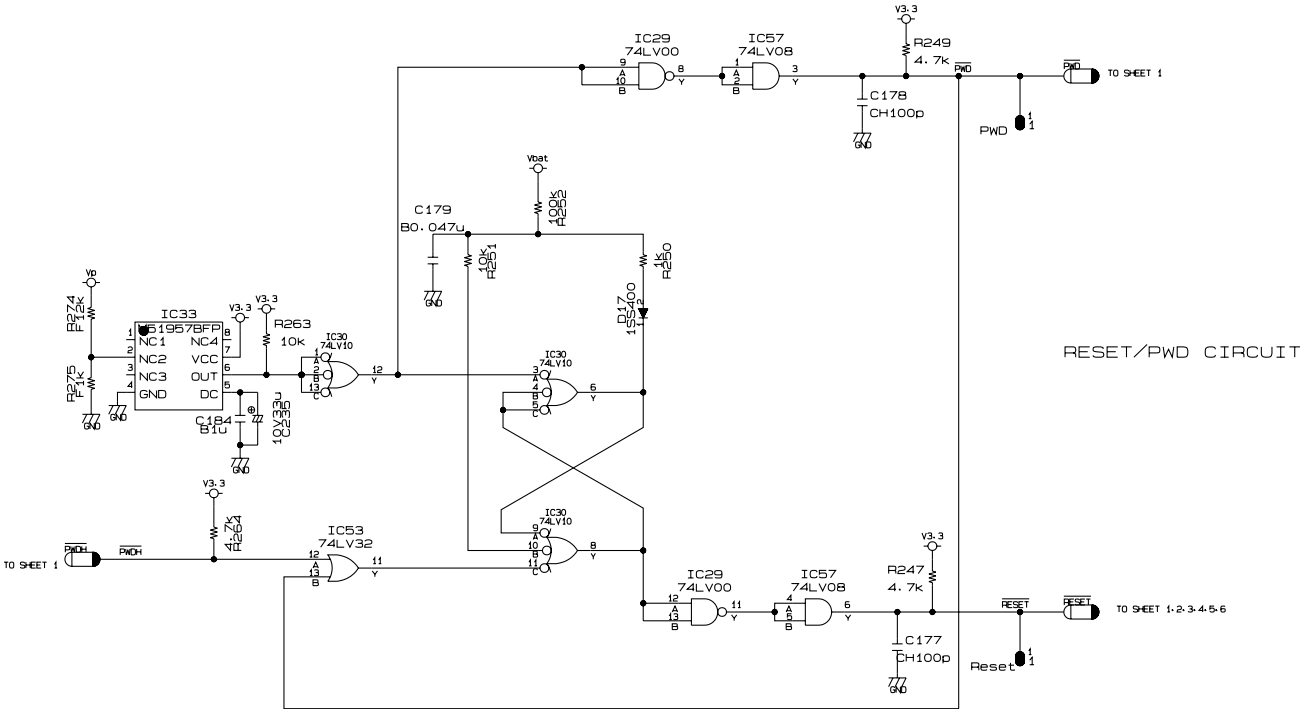


8-2. LSI BLOCK DIAGRAM



8-3. RESET CIRCUIT

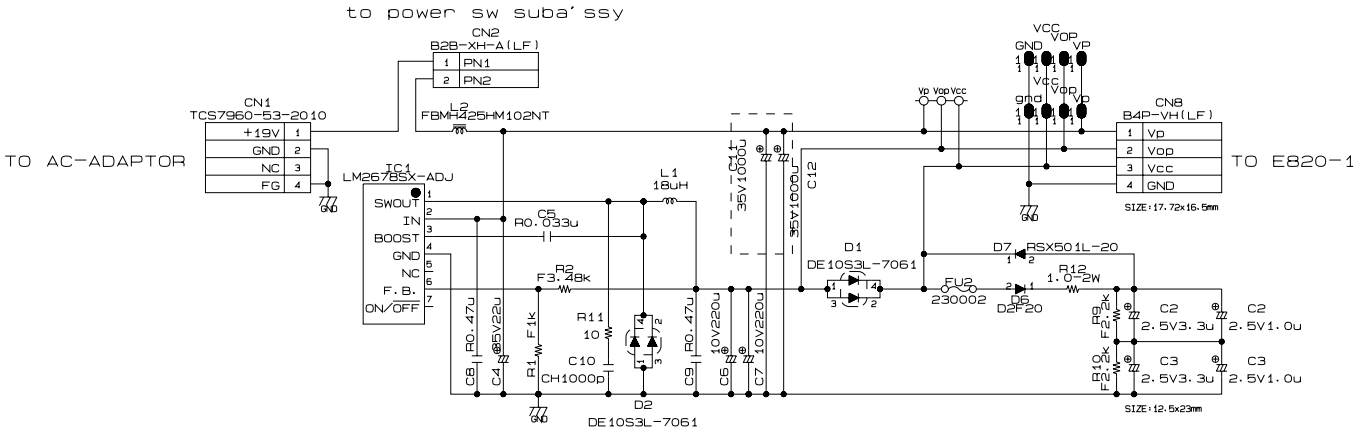
The reset circuit is as follows.



8-4. POWER SUPPLY CIRCUIT 1

VP (DC 19V) For the drawer circuit
VOP (DC 5.2V) For the COM2, 3 power and display ON/OFF LED
VCC (DC 5V) For the logic circuit power

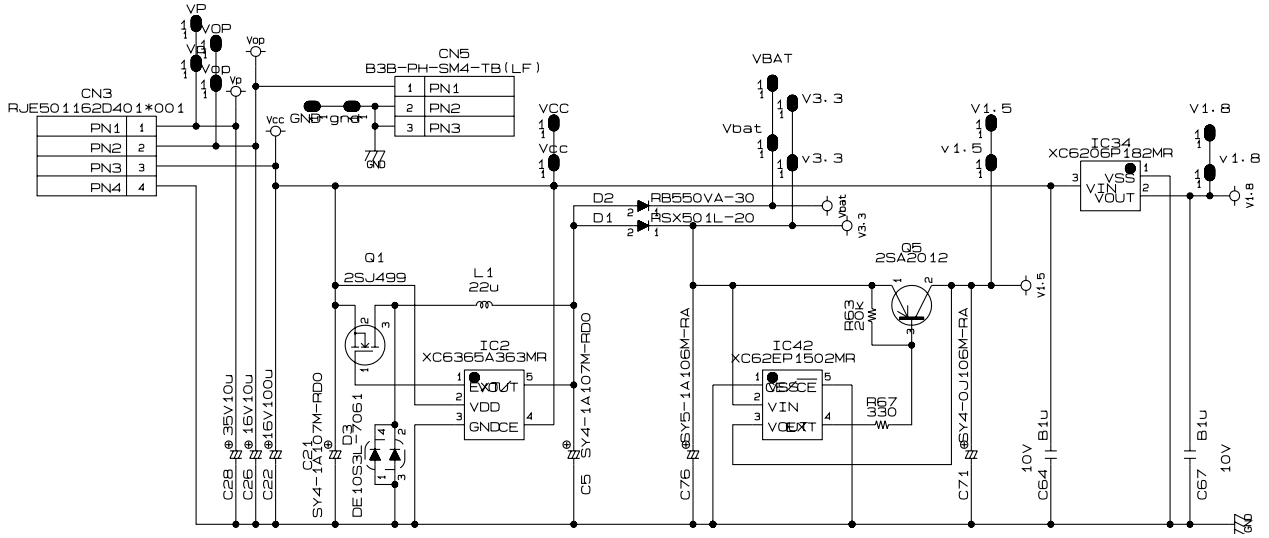
The power supply circuit is as follows.



8-5. POWER SUPPLY CIRCUIT 2

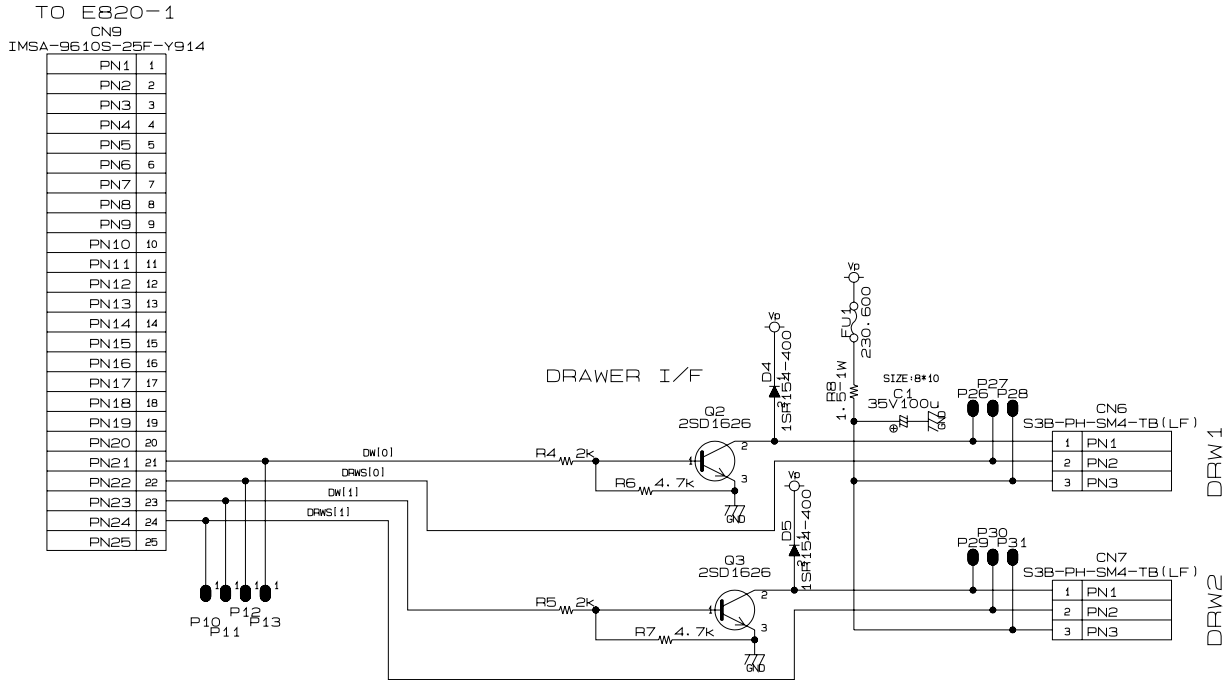
VBAT (DC 3.3V) For the battery
V1.5 (DC 1.5V) For the CPU core
V1.8 (DC 1.8V) For the PCMCIA core

The power supply circuit is as follows.



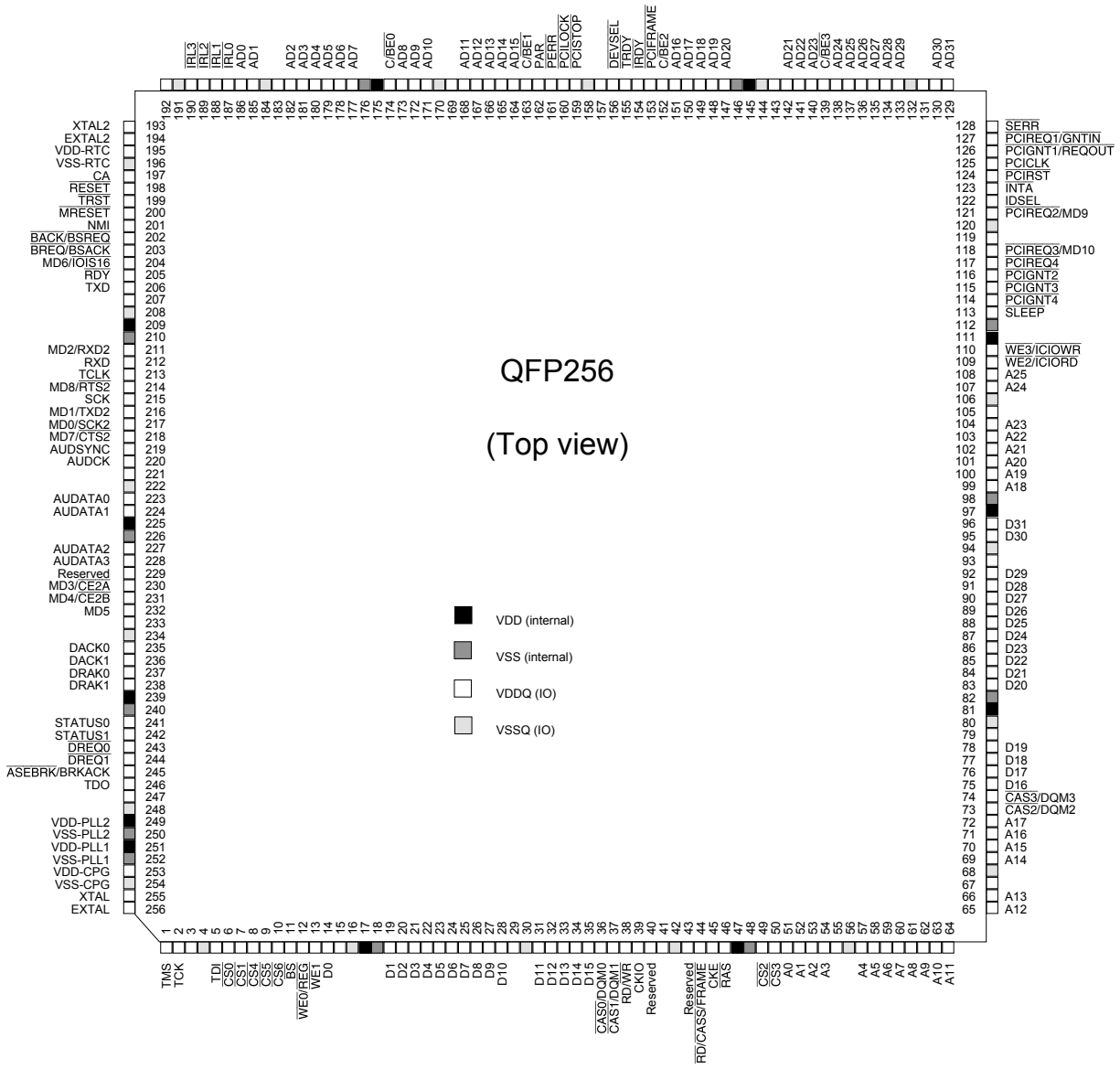
8-6. DRAWER I/F CIRCUIT

The drawer open circuit is as follows.



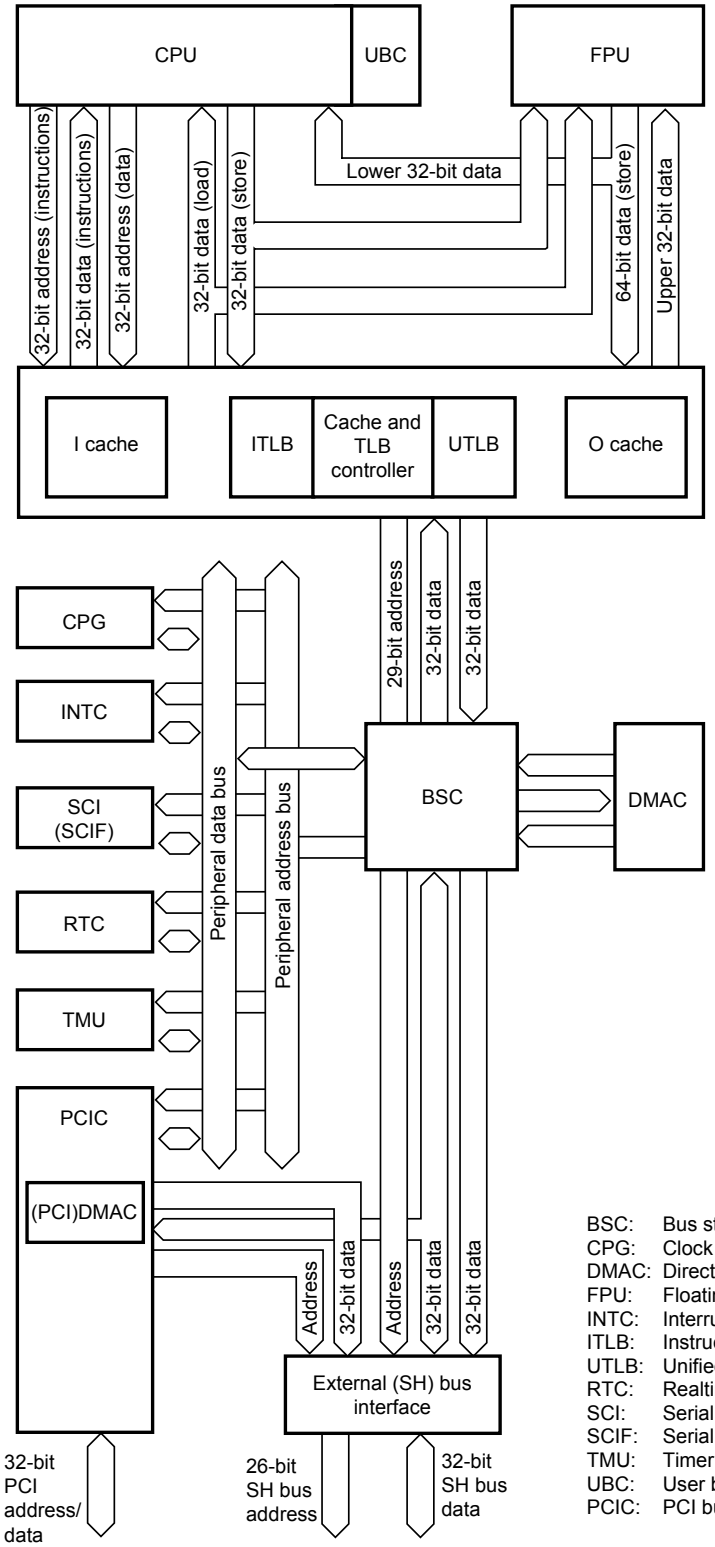
8-7. CPU (IC26: SH7751)

8-7-1. Pin Assignment



Note: Power must be supplied to the on-chip PLL power supply pins (VDD-PLL1, VDD-PLL2, VSS-PLL1, VSS-PLL2, VDD-CPG, VSS-CPG, VDD-RTC, and VSS-RTC) regardless of whether or not the PLL circuits, crystal resonator, and RTC are used.

8-7-2. Block Diagram



BSC: Bus state controller
CPG: Clock pulse generator
DMAC: Direct memory access controller
FPU: Floating-point unit
INTC: Interrupt controller
ITLB: Instruction TLB (translation lookaside buffer)
UTLB: Unified TLB (translation lookaside buffer)
RTC: Realtime clock
SCI: Serial communication interface
SCIF: Serial communication interface with FIFO
TMU: Timer unit
UBC: User break controller
PCIC: PCI bus controller

8-7-3. Pin Function

NO.	PIN NAME	I/O	DESCRIPTION
1	TMS	I	Mode (H-UDI)
2	TCK	I	Clock (H-UDI)
3	VDDQ	Power	IO VDD
4	VSSQ	Power	IO GND
5	TDI	I	Data in (H-UDI)
6	CSO	O	Chip select 0
7	CS1	O	Chip select 1
8	CS4	O	Chip select 4
9	CS5	O	Chip select 5
10	CS6	O	Chip select 6
11	BS	O	Bus start
12	WE0/REG	O	D7-D0 select signal
13	WE1	O	D15-D8 select signal
14	D0	I/O	Data
15	VDDQ	Power	IO VDD
16	VSSQ	Power	IO GND
17	VDD	Power	Internal VDD
18	VSS	Power	Internal GND
19	D1	I/O	Data
20	D2		
21	D3		
22	D4		
23	D5		
24	D6		
25	D7		
26	D8		
27	D9		
28	D10		
29	VDDQ	Power	IO VDD
30	VSSQ	Power	IO GND
31	D11	I/O	Data
32	D12		
33	D13		
34	D14		
35	D15		
36	CAS0/DQM0	O	D7-D0 select signal
37	CAS1/DQM1	O	D15-D8 select signal
38	RD/WR	O	Read/write
39	CKIO	O	Clock output
40	Reserved	-	Do not connect
41	VDDQ	Power	IO VDD
42	VSSQ	Power	IO GND
43	Reserved	-	Do not connect
44	RD/CASS/FRAME	O	Read/CAS/FRAME
45	CKE	O	Clock output enable
46	RAS	O	RAS
47	VDD	Power	Internal VDD
48	VSS	Power	Internal GND
49	CS2	O	Chip select 2
50	CS3	O	Chip select 3
51	A0	O	Address
52	A1		
53	A2		
54	A3		

NO.	PIN NAME	I/O	DESCRIPTION
55	VDDQ	Power	IO VDD
56	VSSQ	Power	IO GND
57	A4	O	Address
58	A5		
59	A6		
60	A7		
61	A8		
62	A9		
63	A10		
64	A11		
65	A12		
66	A13		
67	VDDQ	Power	IO VDD
68	VSSQ	Power	IO GND
69	A14	O	Address
70	A15		
71	A16		
72	A17		
73	CAS2/DQM2	O	D23-D16 select signal
74	CAS3/DQM3	O	D31-D24 select signal
75	D16	I/O	Data
76	D17		
77	D18		
78	D19		
79	VDDQ	Power	IO VDD
80	VSSQ	Power	IO GND
81	VDD	Power	Internal VDD
82	VSS	Power	Internal GND
83	D20	I/O	Data
84	D21		
85	D22		
86	D23		
87	D24		
88	D25		
89	D26		
90	D27		
91	D28		
92	D29		
93	VDDQ	Power	IO VDD
94	VSSQ	Power	IO GND
95	D30	I/O	Data
96	D31		
97	VDD	Power	Internal VDD
98	VSS	Power	Internal GND
99	A18	O	Address
100	A19		
101	A20		
102	A21		
103	A22		
104	A23		
105	VDDQ	Power	IO VDD
106	VSSQ	Power	IO GND
107	A24	O	Address
108	A25		
109	WE2/ICIORD	O	D23-D16 select signal

NO.	PIN NAME	I/O	DESCRIPTION
110	WE3/ICIOWR	O	D31-D24 select signal
111	VDD	Power	Internal VDD
112	VSS	Power	Internal GND
113	SLEEP	I	Sleep
114	PCIGNT4	O	Bus grant (host function)
115	PCIGNT3	O	Bus grant (host function)
116	PCIGNT2	O	Bus grant (host function)
117	PCIREQ4	I*	Bus request (host function)
118	PCIREQ3/MD10	I*	Bus request (host function)/mode
119	VDDQ	Power	IO VDD
120	VSSQ	Power	IO GND
121	PCIREQ2/MD9	I*	Bus request (host function)/mode
122	IDSEL	I	Configuration device select
123	INTA	O	Interrupt (async)
124	PCIRST	O	Reset output
125	PCICLK	I	PCI input clock
126	PCIGNT1/REQOUT	O	Bus grant (host function)/bus request
127	PCIREQ1/GNTIN	I	Bus request (host function)/bus grant
128	SERR	I/O	System error
129	AD31	I/O	PCI address/data/port
130	AD30	I/O	PCI address/data/port
131	VDDQ	Power	IO VDD
132	VSSQ	Power	IO GND
133	AD29	I/O	PCI address/data/port
134	AD28		
135	AD27		
136	AD26		
137	AD25		
138	AD24		
139	C/BE3	I/O	Command/byte enable
140	AD23	I/O	PCI address/data/port
141	AD22		
142	AD21		
143	VDDQ	Power	IO VDD
144	VSSQ	Power	IO GND
145	VDD	Power	Internal VDD
146	VSS	Power	Internal GND
147	AD20	I/O	PCI address/data/port
148	AD19		
149	AD18		
150	AD17		
151	AD16		
152	C/BE2	I/O	Command/byte enable
153	PCIFRAME	I/O	Bus cycle
154	IRDY	I/O	Initiator ready
155	TRDY	I/O	Target read
156	DEVSEL	I/O	Device select
157	VDDQ	Power	IO VDD
158	VSSQ	Power	IO GND
159	PCISTOP	I/O	Transaction stop
160	PCILOCK	I/O	Exclusive access
161	PERR	I/O	Parity error
162	PAR	I/O	Parity
163	C/BE1	I/O	Command/byte enable
164	AD15	I/O	PCI address/data/port

NO.	PIN NAME	I/O	DESCRIPTION
165	AD14	I/O	PCI address/data/port
166	AD13		
167	AD12		
168	AD11		
169	VDDQ	Power	IO VDD
170	VSSQ	Power	IO GND
171	AD10	I/O	PCI address/data/port
172	AD9		
173	AD8		
174	C/BE0	I/O	Command/byte enable
175	VDD	Power	Internal VDD
176	VSS	Power	Internal GND
177	AD7	I/O	PCI address/data/port
178	AD6		
179	AD5		
180	AD4		
181	AD3		
182	AD2		
183	VDDQ	Power	I/O VDD
184	VSSQ	Power	I/O GND
185	AD1	I/O	PCI address/data/port
186	AD0	I/O	PCI address/data/port
187	IRL0	I	Interrupt 0
188	IRL1	I	Interrupt 1
189	IRL2	I	Interrupt 2
190	IRL3	I	Interrupt 3
191	VSSQ	Power	I/O GND
192	VDDQ	Power	I/O VDD
193	XTAL2	O	RTC crystal resonator pin
194	EXTAL2	I	RTC crystal resonator pin
195	VDD-RTC	Power	RTC VDD
196	VSS-RTC	Power	RTC GND
197	CA	I	Hardware standby
198	RESET	I	Reset
199	TRST	I	Reset (H-UDI)
200	MRESET	I	Manual reset
201	NMI	I	Nonmaskable interrupt
202	BACK/BSREQ	O	Bus acknowledge/bus request
203	BREQ/BSACK	I	Bus request/bus acknowledge
204	MD6/IOIS16	I	Mode/IOIS16 (PCMCIA)
205	RDY	I	Bus ready
206	TXD	O	SCI data output
207	VDDQ	Power	IO VDD
208	VSSQ	Power	IO GND
209	VDD	Power	Internal VDD
210	VSS	Power	Internal GND
211	MD2/RXD2	I	Mode/SCIF data input
212	RXD	I	SCI data input
213	TCLK	I/O	RTC/TMU clock
214	MD8/576	I/O	Mode/SCIF data control (RTS)
215	SCK	I/O	SCIF clock
216	MD1/TXD2	I/O	Mode/SCIF data output
217	MD0/SCK2	I/O	Mode/SCIF clock
218	MD7/CTS2	I/O	Mode/SCIF data control (CTS)

NO.	PIN NAME	I/O	DESCRIPTION
219	AUDSYNC	-	AUD sync
220	AUDCK	-	AUD clock
221	VDDQ	Power	IO VDD
222	VSSQ	Power	IO GND
223	AUDATA0	-	AUD data
224	AUDATA1		
225	VDD	Power	Internal VDD
226	VSS	Power	Internal GND
227	AUDATA2	-	AUD data
228	AUDATA3		
229	Reserved	-	Do not connect
230	MD3/CE2A	I/O	Mode/PCMCIA-CE
231	MD4/CE2B	I/O	Mode/PCMCIA-CE
232	MD5	I	Mode MD5
233	VDDQ	Power	IO VDD
234	VSSQ	Power	IO GND
235	DACK0	O	DMAC0 bus acknowledge
236	DACK1	O	DMAC1 bus acknowledge
237	DRAK0	O	DMAC0 request acknowledge
238	DRAK1	O	DMAC1 request acknowledge
239	VDD	Power	Internal VDD
240	VSS	Power	Internal GND
241	STATUS0	O	Status
242	STATUS1		
243	DREQ0	I	Request from DMAC0
244	DREQ1	I	Request from DMAC1
245	ASEBRK/BRKACK	I/O	Pin break/acknowledge (H-UDI)
246	TDO	O	Data out (H-UDI)
247	VDDQ	Power	IO VDD
248	VSSQ	Power	IO GND
249	VDD-PLL2	Power	PLL2 VDD
250	VSS-PLL2	Power	PLL2 GND
251	VDD-PLL1	Power	PLL1 VDD
252	VSS-PLL1	Power	PLL1 GND
253	VDD-CPG	Power	CPG VDD
254	VSS-CPG	Power	CPG GND
255	XTAL	O	Crystal resonator
256	EXTAL	I	External input clock/crystal resonator

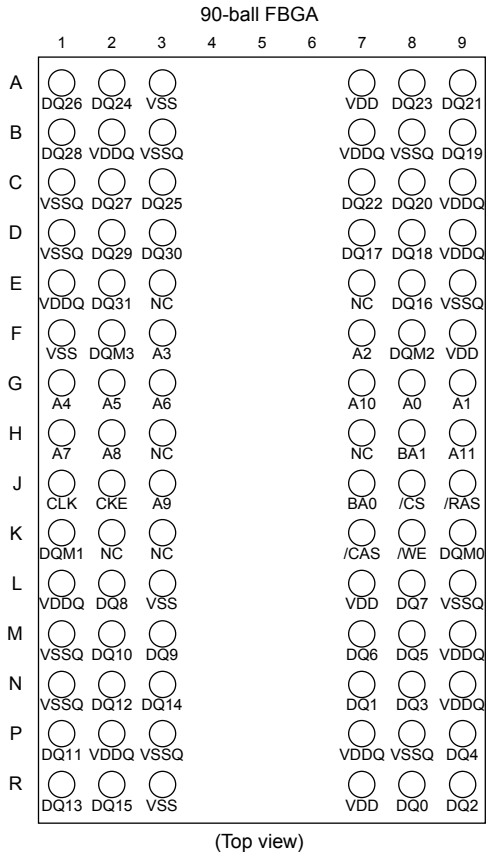
I: Input
O: Output
I/O: Input/output
Power: Power supply
Notes: 1. Except in hardware standby mode, supply power to all power pins. In hardware standby mode, supply power to RTC as a minimum.
2. Power must be supplied to VDD-PLL1/2 and VSS-PLL1/2 regardless of whether or not the on-chip PLL circuits are used.
3. Power must be supplied to VDD-CPG and VSS-CPG regardless of whether or not the on-chip crystal resonator is used.
4. Power must be supplied to VDD-RTC and VSS-RTC regardless of whether or not the on-chip RTC is used.
5. For the handling of the PCI bus pins in PCI-disabled mode, see table D.4 in appendix D.
* I/O attribute is I/O when used as a port.

8-8. G/A (IC14: uPD65945GJ-093-JEU)

8-8-1. Pin Function

PIN NO	PIN NAME	I/O	DESCRIPTIN	PIN NO	PIN NAME	I/O	DESCRIPTIN
1	VDD	VDD	VDD	73	VDD	VDD	VDD
2	GD0	I/O	ARC DATA (D0)	74	CLKOUT	O	CLOCK 8MHz
3	GD1	I/O	ARC DATA (D1)	75	CLKIN	I	CLOCK 8MHz
4	GD2	I/O	ARC DATA (D2)	76	GND	I	GND
5	GD3	I/O	ARC DATA (D3)	77	CS	I	Chip Select 5
6	GD4	I/O	ARC DATA (D4)	78	A0	I	ADDRESS (A1)
7	TVDD	VDD	VDD	79	A1	I	ADDRESS (A2)
8	TGND	GND	GND	80	A2	I	ADDRESS (A3)
9	GD5	I/O	ARC DATA (D5)	81	A3	I	GND
10	GD6	I/O	ARC DATA (D6)	82	A23	I	ADDRESS (A23)
11	GD7	I/O	ARC DATA (D7)	83	A20	I	ADDRESS (A20)
12	GD8	I/O	VDD	84	A21	I	ADDRESS (A21)
13	GD9	I/O	VDD	85	A22	I	ADDRESS (A22)
14	TGND	GND	GND	86	RD	I	IO READ
15	GD10	I/O	VDD	87	WE	I	IO WRITE
16	GD11	I/O	VDD	88	INT6	I	INT for ARC
17	GD12	I/O	VDD	89	INT7	I	Int for PCMCIA
18	GD13	I/O	VDD	90	TVDD	VDD	VDD
19	GD14	I/O	VDD	91	RESET	I	RESET
20	TVDD	VDD	VDD	92	RD_WE	I	READ/WRITE signal
21	TGND	GND	GND	93	TESTB	I	VDD
22	GD15	I/O	VDD	94	U1_CTSB	I	CST2
23	GA0	O	ARC ADDRESS (A0)	95	U1_DSRB	I	DSR2
24	GA1	O	ARC ADDRESS (A1)	96	U1_SIN	I	RXD2
25	GA2	O	ARC ADDRESS (A2)	97	U1_DTRB	O	DTR2
26	GA3	O	Not used	98	U1_RTSB	O	RTS2
27	TGND	GND	GND	99	U1_SOUT	O	TXD2
28	D0	I/O	DATA (D0)	100	U2_CTSB	I	CTS3
29	D1	I/O	DATA (D1)	101	U2_DSRB	I	DSR3
30	D2	I/O	DATA (D2)	102	U2_SIN	I	RXD3
31	TVDD	VDD	VDD	103	U2_DTRB	O	DTR3
32	TGND	GND	GND	104	U2_RTSB	O	RTS3
33	D3	I/O	DATA (D3)	105	U2_SOUT	O	TXD3
34	D4	I/O	DATA (D4)	106	U3_CTSB	I	CTS4
35	D5	I/O	DATA (D5)	107	U3_DSRB	I	DSR4
36	VDD	VDD	VDD	108	VDD	VDD	VDD
37	GND	GND	GND	109	GND	GND	GND
38	GND	GND	GND	110	GND	GND	GND
39	D6	I/O	DATA (D6)	111	U3_SIN	I	RXD4
40	D7	I/O	DATA (D7)	112	U3_DTRB	O	DTR4
41	D8	I/O	VDD	113	U3_RTSB	O	RTS4
42	TGND	GND	GND	114	U3_SOUT	O	TXD4
43	D9	I/O	VDD	115	U4_CTSB	I	VDD
44	D10	I/O	VDD	116	U4_DSRB	I	VDD
45	D11	I/O	VDD	117	U4_SIN	I	VDD
46	TVDD	VDD	VDD	118	U4_DTRB	O	NOT USED
47	TGND	GND	GND	119	U4_RTSB	O	NOT USED
48	D12	I/O	VDD	120	U4_SOUT	O	NOT USED
49	D13	I/O	VDD	121	U5_CTSB	I	VDD
50	D14	I/O	VDD	122	U5_DSRB	I	VDD
51	TGND	GND	GND	123	U5_SIN	I	VDD
52	D15	I/O	VDD	124	U5_DTRB	O	NOT USED
53	INTC2	O	INT for ARC	125	U5_RTSB	O	NOT USED
54	INTC1	O	INT for UART	126	U5_SOUT	O	NOT USED
55	GCS1	O	Chip Select for ARC	127	TVDD	VDD	VDD
56	GCS2	O	EST-CS	128	PCMIN	I	PCMCD1
57	GRD	O	Read signal for ARC	129	CE1B	I	CE1
58	GWE	O	Write signal for ARC	130	CE2B	I	CE2
59	PCIN	O	PCMCIA IN/OUT signal	131	CFIN	I	CFCD1
60	PCMG	O	Enable for PCMCIA	132	CE1A	I	CE1
61	CFCE1A	O	Chip Enable1 for CF CARD	133	CFCE	I	ADDRESS (A23)
62	CIN	O	CF CARD IN/OUT signal	134	CE2A	I	CE2
63	CFG	O	Enable for CF CARD	135	BFI1	I	CI1
64	CFCE2A	O	Chip Enable2 for CF CARD	136	BFI2	I	CD1
65	ANDO1	O	WAIT signal	137	BFI3	I	RXD1
66	ANDO2	O	DSR	138	BFI4	I	CTS1
67	BFO1	O	CI	139	ANDI1	I	WAIT for CF CARD
68	BFO2	O	CD	140	ANDI2	I	WAIT for PCMCIA
69	BFO3	O	RXD	141	ANDI3	I	DSR1
70	BFO4	O	CTS	142	ANDI4	I	DSR1
71	GND	GND	GND	143	GND	GND	GND
72	GND	GND	GND	144	GND	GND	GND

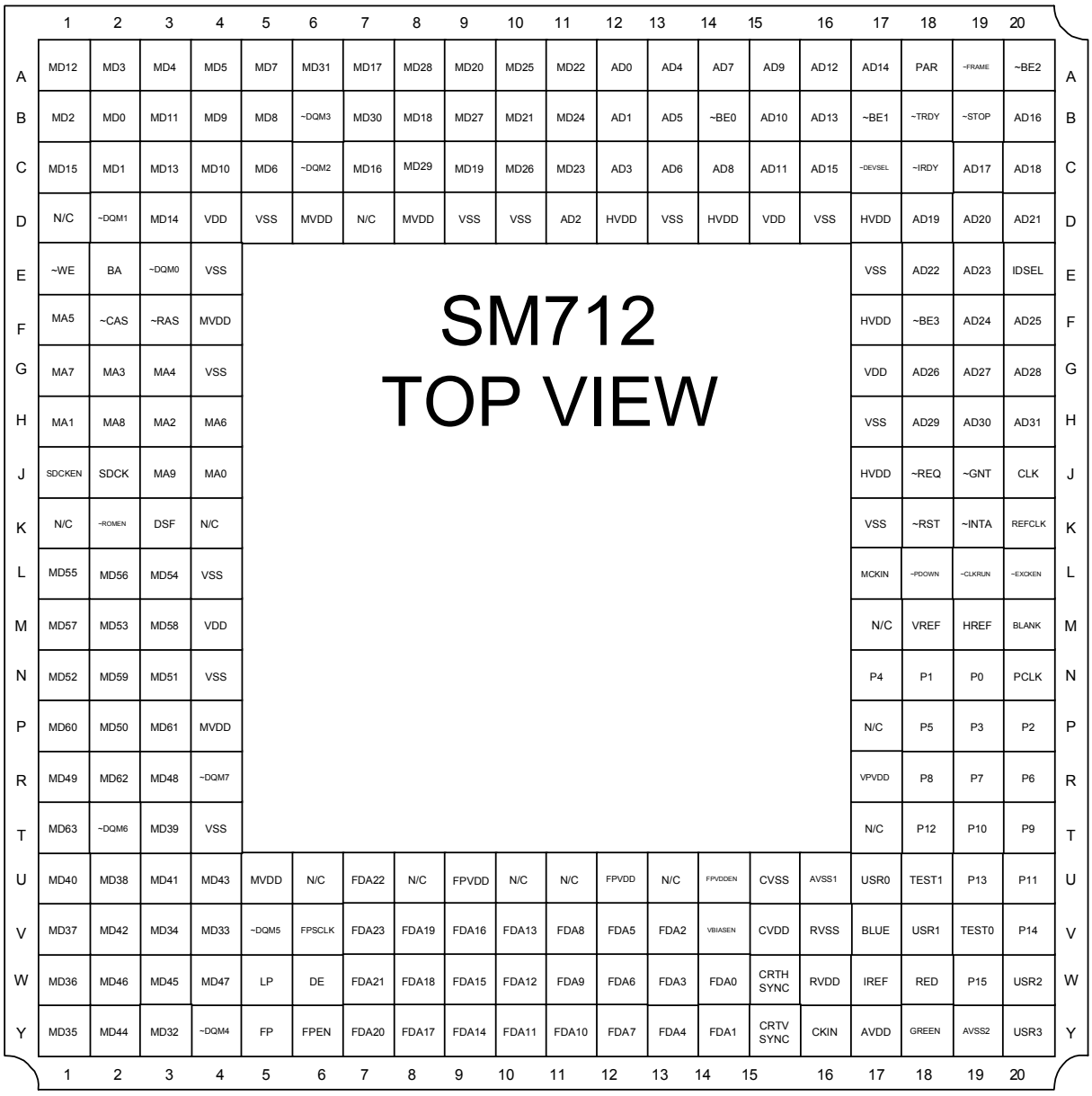
8-9. SDRAM (IC12: HY5V52ALFP-H-C)


90-ball FBGA
1 2 3 4 5 6 7 8 9
A DQ26 DQ24 VSS VDD DQ23 DQ21
B DQ28 VDDQ VSSQ VDDQ VSSQ DQ19
C VSSQ DQ27 DQ25 DQ22 DQ20 VDDQ
D VSSQ DQ29 DQ30 DQ17 DQ18 VDDQ
E VDDQ DQ31 NC NC DQ16 VSSQ
F VSS DQM3 A3 A2 DQM2 VDD
G A4 A5 A6 A10 A0 A1
H A7 A8 NC NC BA1 A11
J CLK CKE A9 BA0 /CS /RAS
K DQM1 NC NC /CAS /WE DQM0
L VDDQ DQ8 VSS VDD DQ7 VSSQ
M VSSQ DQ10 DQ9 DQ6 DQ5 VDDQ
N VSSQ DQ12 DQ14 DQ1 DQ3 VDDQ
P DQ11 VDDQ VSSQ VDDQ VSSQ DQ4
R DQ13 DQ15 VSS VDD DQ0 DQ2

(Top view)

8-10. DISPLAY CONTROLLER (IC45: SM712)

8-10-1. Pin Assignment



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
A	MD12	MD3	MD4	MD5	MD7	MD31	MD17	MD28	MD20	MD25	MD22	AD0	AD4	AD7	AD9	AD12	AD14	PAR	~FRAME	~BE2	A
B	MD2	MD0	MD11	MD9	MD8	~DQM3	MD30	MD18	MD27	MD21	MD24	AD1	AD5	~BE0	AD10	AD13	~BE1	~TRDY	~STOP	AD16	B
C	MD15	MD1	MD13	MD10	MD6	~DQM2	MD16	MD29	MD19	MD26	MD23	AD3	AD6	AD8	AD11	AD15	~DEVSEL	~IRDY	AD17	AD18	C
D	N/C	~DQM1	MD14	VDD	VSS	MVDD	N/C	MVDD	VSS	VSS	AD2	HVDD	VSS	HVDD	VDD	VSS	HVDD	AD19	AD20	AD21	D
E	~WE	BA	~DQM0	VSS													VSS	AD22	AD23	IDSEL	E
F	MA5	~CAS	~RAS	MVDD													HVDD	~BE3	AD24	AD25	F
G	MA7	MA3	MA4	VSS													VDD	AD26	AD27	AD28	G
H	MA1	MA8	MA2	MA6													VSS	AD29	AD30	AD31	H
J	SDCKEN	SDCK	MA9	MA0													HVDD	~REQ	~GNT	CLK	J
K	N/C	~ROMEN	DSF	N/C													VSS	~RST	~INTA	REFCLK	K
L	MD55	MD56	MD54	VSS													MCKIN	~PDOWN	~CLKRUN	~EXCKEN	L
M	MD57	MD53	MD58	VDD													N/C	VREF	HREF	BLANK	M
N	MD52	MD59	MD51	VSS													P4	P1	P0	PCLK	N
P	MD60	MD50	MD61	MVDD													N/C	P5	P3	P2	P
R	MD49	MD62	MD48	~DQM7													VPVDD	P8	P7	P6	R
T	MD63	~DQM6	MD39	VSS													N/C	P12	P10	P9	T
U	MD40	MD38	MD41	MD43	MVDD	N/C	FDA22	N/C	FPVDD	N/C	N/C	FPVDD	N/C	FPVDDEN	CVSS	AVSS1	USR0	TEST1	P13	P11	U
V	MD37	MD42	MD34	MD33	~DQM5	FPSCLK	FDA23	FDA19	FDA16	FDA13	FDA8	FDA5	FDA2	VBIASEN	CVDD	RVSS	BLUE	USR1	TEST0	P14	V
W	MD36	MD46	MD45	MD47	LP	DE	FDA21	FDA18	FDA15	FDA12	FDA9	FDA6	FDA3	FDA0	CRTH SYNC	RVDD	IREF	RED	P15	USR2	W
Y	MD35	MD44	MD32	~DQM4	FP	FPEN	FDA20	FDA17	FDA14	FDA11	FDA10	FDA7	FDA4	FDA1	CRTV SYNC	CKIN	AVDD	GREEN	AVSS2	USR3	Y
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

8-10-2. Pin Function

PIN NAME	I/O	DESCRIPTION
Host Interface		
AD [31:0]	I/O	PCI multiplexed Address and Data Bus. A bus transaction consists of an address cycle followed by one or more data cycles.
C/ ~BE [3:0]	I/O	PCI Bus Command and Byte Enables. These signals carry the bus command during the address cycle and byte enable during data cycles.
PAR	I/O	Parity. LynxEM+ asserts this signal to verify even parity across AD [31:0] and C/~BE [3:0].
~FRAME	I/O	Cycle Frame. LynxEM+ asserts this signal to indicate the beginning and duration of a bus transaction. It is de-asserted during the final data cycle of a bus transaction.
~TRDY	I/O	Target Ready. A bus data cycle is completed when both ~IRDY and ~TRDY are asserted on the same cycle.
~IRDY	I/O	Initiator Ready. A bus data cycle is completed when both ~IRDY and ~TRDY are asserted on the same cycle.
~STOP	I/O	Stop. LynxEM+ asserts this signal to indicate that the current target is requesting the master to stop current transaction.
~DEVSEL	I/O	Device Select. LynxEM+ asserts this signal when it decodes its addresses as the target of the current transaction.
IDSEL	I	ID Select. This input is used during PCI configuration read/write cycles.
CLK	I	PCI System Clock, 33 MHz.
~RST	I	PCI System Reset. LynxEM+ asserts this signal to force registers and state machines to initial default values
~REQ	O	PCI Bus Request (bus master mode)
~GNT	I	PCI Bus Grant (bus master mode)
~INTA	O	PCI Interrupt
Power Down Interface		
~PDOWN	I	Power down mode enable
~CLKRUN/ ACTIVITY	O	~CLKRUN or LynxEM+ Memory and I/O activity detection depending on SCR18 [7] 0 = select ~CLKRUN 1 = select ACTIVITY
Clock Interface		
REFCLK	I	32 KHz refresh clock source for power down or PALCLK for PALTV
CKIN	I	14.318 MHz clock (~EXCKEN = 1) or Video Clock (~EXCKEN = 0)
MCKIN/ LVDSCLK	I/O	Memory Clock In (~EXCKEN = 0) or LVDSCLK Out (~ESCKEN = 1), LVDSCLK is a free running clock which can be used to drive LVDS transmitter for DSTN panels.
~EXCKEN	I	External Clock Enable. Select external VCLK form CKIN and MCLK from MCKIN.

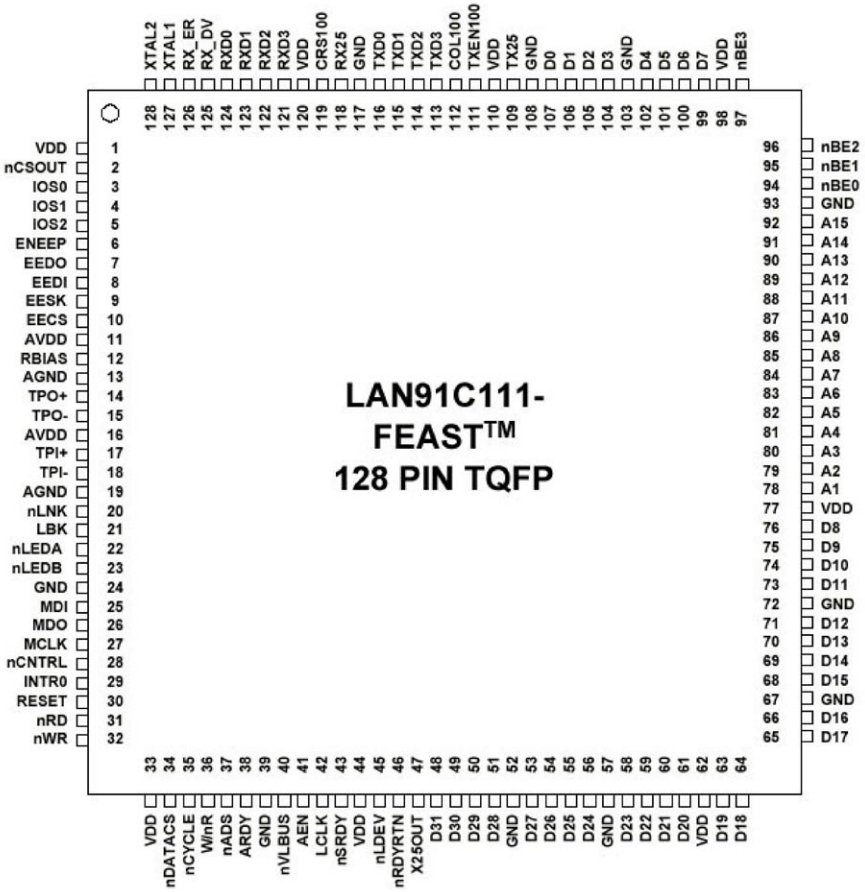
PIN NAME	I/O	DESCRIPTION
External Display Memory Interface		
MA [9:0]	O	External Memory Address Bus. The video memory row and column addresses are multiplexed on these lines.
MD [63:0]	I/O	External Memory Data Bus
~WE	O	External Memory Write Strobe
~RAS	O	External Memory SDRAM Row Address Select
~CAS	O	External SGRAM Column Address Select
~CS0	O	External SGRAM Chip Select 0, select 1st 1MB within the 2MB memory, or select 1st 2MB within the 4MB memory
~DQM [7:0]	O	External SGRAM I/O mask [7:0]. DQM [7:0] are byte specific. DQM0 masks MD [7:0], DQM1 masks MD [15:8], …,and DQM7 masks MD [63:58].
DSF	O	External SGRAM Block write
BA	O	External SGRAM Bank Select. SDRAM has dual internal banks. Bank address defines to which bank the current command is being applied.
SDCK	I/O	External SGRAM clock. SDCK is driven by the memory clock. All SDRAM input signals are sampled on the positive edge of SDCK.
SDCKEN	I/O	External SGRAM clock enable. SDCKEN activates (HIGH) and deactivates (LOW) the SDCLK signal. Deactivating the SDCK provides POWER-DOWN and SELF-REFRESH mode.
~ROMEN	O	ROM Enable
Flat Panel Interface		
FDATA [23:0]	O	Flat Panel Data bit 23 to bit 0. Note: For SM712, the upper 12 bits [25:24] are multiplexed with ZV port, and the upper 12 bits [23:11] are dedicated for flat panel data
LP/FHSYNC	O	DSTN LCD: Line Pulse TFT LCD: LCD Horizontal Sync
FP/FVSYNC	O	DSTN LCD: Frame Pulse TFT LCD: LCD vertical sync
M/ DE	O	M-signal or Display Enable. This signal is used to indicate the active horizontal display time. FPR3E [7] is used to select 1 = M-signal 0 = Display Enable
FPSCLK	O	Flat Panel Shift Clock. This is the pixel clock for Flat Panel Data.
FPEN	O	Flat Panel Enable. This signal needs to become active after all panel voltages, clocks, and data are supplied. This signal also needs to become inactive before any panel voltages or control signals are removed. FPEN is part of the VESA FPDI-1B specification.
FPVDDEN	O	Flat Panel VDD Enable. This signal is used to control LCD logic power.
VBIASEN	O	Flat Panel Voltage Bias Enable. This signal is used to control LCD Bias power.

PIN NAME	I/O	DESCRIPTION
CRT Interface		
RED	O	Analog Red Current Output
GREEN	O	Analog Green Current Output
BLUE	O	Analog Blue Current Output
IREF	I	Current Reference Input
CRTVSYN-CC	O	CRT Vertical Sync
CRTH-	O	CRT Horizontal Sync or Composite Sync depending on CCR65 [0] 0 = CRT Horizontal Sync 1 = Composite Sync
Video Port Interface		
P [15:0]	I/O	RGB or YUV input/ RGB digital output
PCLK	I/O	Pixel Clock
VREF	I/O	VSYNC input from PC Card or video decoder
HREF	I/O	HSYNC input from PC Card or video decoder
BLANK/ TVCLK	I/O	Blank output or TVCLK output depending on CCR69 bit 7. 0 = BLANK output 1 = TVCLK output TVCLK output is used to drive external NTSC/PAL TV encoder. To select NTSC or PAL TV, please refer to CCR65 register
General Purpose Registers / I2C		
USR3	I/O	General Purpose register. It is recommended to use USR3 to control TV On/Off. 0 = TV display is OFF 1 = TV display is ON
USR2	I/O	General Purpose register. It is recommended to use USR2 to select NTSC/PAL TV settings. 0 = PALTVCLK 1 = NTSCTVCLK or REFCLK
USR1 / SDA	I/O	General Purpose register. USR1/ DDC2/ I2C Data. Can be used to select different test modes.
USR0 / SCL	I/O	General Purpose register. USR0/ DDC2/ I2C Clock. Can be used to select different test modes.
Tes t Mode Pi ns		
TEST [1:0]	I	Test mode selects

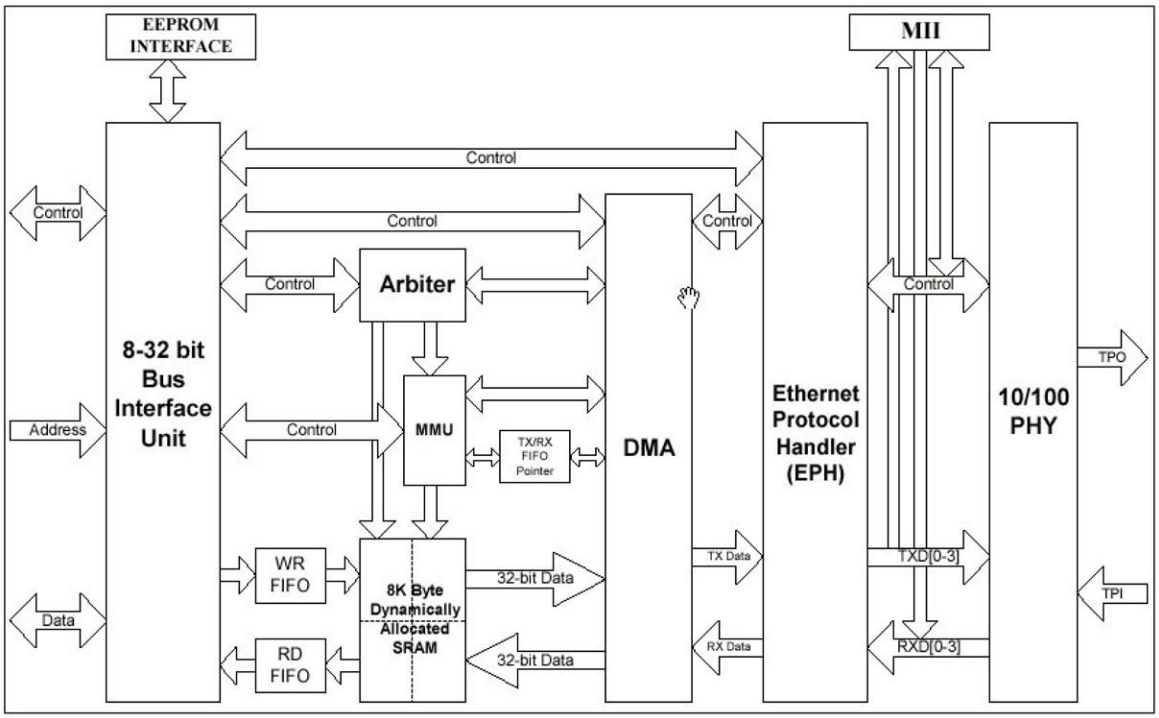
PIN NAME	I/O	DESCRIPTION
VCC and GROUND Pins		
HVDD		Host Interface VDD on I/O Ring, 3.3V
MVDD		Display Memory Interface VDD on I/O Ring, 3.3V
FPVDD		Flat Panel Interface VDD on I/O Ring, 3.3V
VPVDD		VPVDD VPort Interface VDD on I/O Ring 3.3V
CVDD		Clock (PLL) Analog Power, 3.3V
AVDD		DAC Analog Power, 3.3V
RVDD		RAM Filtered Palette Power, 3.3V
CVSS		PLL Analog Ground
AVSS1		DAC Analog Ground
AVSS2		DAC Analog Ground
RVSS		RAM Filtered Palette Ground
VDD		Digital 3.3V Core Power Supply Digital 3.3V Internal Memory Power Supply
VSS		Digital Ground

8-11. ETHERNET CONTROLLER (IC28: LAN91C113)

8-11-1. Pin Assignment



8-11-2. Block Diagram



9. ERROR CODE LIST

9-1 Error messages

When an error occurs on a QT-6100 terminal, a buzzer sounds and the appropriate error message appears on the main display, indicating what action to take.
The following table lists the error messages and describes the action to take.

Prompt message	Meaning	Action
Operator mistake.	Operation error	Perform proper operation.
E001 Wrong mode.	Check tracking (Open mode error)	Return the mode to its original setting.
E003 Wrong operator.	Error clerk/Error clerk in check tracking	Input correct check number or assign the proper clerk.
E005 Insufficient memory.	Memory allocation over	Reallocate memory.
E011 Close the drawer.	Drawer compulsory	Close cash drawer.
E012 Journal paper end.	Journal paper end	Replace journal paper.
E014 Receipt paper end.	Receipt paper end	Replace receipt paper.
E015 Check R/J printer.	Internal R/J printer error	Check the internal R/J printer.
E016 Change back to REG mode.	Prohibit plural operation in REF/REG– mode	Switch to another mode and then back to the REF/REG– mode again.
E017 Enter Check/TBL number.	Check number compulsory	Input a check number.
E018 Enter Table number.	Table number compulsory	Input a table number.
E019 Enter Number of covers.	Cover compulsory	Enter the number of customers.
E020 Enter Seat number.	Seat number compulsory	Input a seat number.
E023 Stock running short.	Alarm when any item drops below its programmed minimum stock quantity during registration.	Perform stock maintenance.
E024 No stock is available.	Error when actual stock value for a registration items is a negative value.	Perform stock maintenance.
E028 Not found PLU or C/D is mismatch.	Scanning PLU is not found or OBR code is mismatched.	Re-enter the PLU code.
E029 No registration is possible while you are in the tender operation.	Attempted registration whilst partial tender operation is being done.	Finalize the transaction.
E031 Press ST key before Finalization.	ST compulsory	Press ST key.
E033 Enter tendered amount.	Amount tender compulsory	Enter tendered amount.
E035 Change amount exceeds the limit.	Change amount exceeds the limit.	Enter amount tendered again.
E036 Remove money from the drawer.	Contents of the drawer exceed the programmed limit — Sentinel function.	Perform pickup operation.
E037 Digit or Amount Limitation Over.	H.D.L., H.A.L., L.D.L. error	Enter correct unit price/amount.
E038 Perform Money Declaration	Money declaration compulsory	Perform money declaration.
E040 Issue Guest Receipt.	Guest receipt compulsory	Issue a guest receipt.
E041 Print Validation.	Validation compulsory	Perform validation operation.
E044 Print Cheque.	Check print compulsory	Perform check print operation.
E045 Print Check-Endorsement.	Check endorsement compulsory	Perform check endorsement operation.
E046 REG Buffer Full. Please Finalize or NB.	Registration buffer full	Finalize the transaction. Allocate sufficient buffer.
E047 Print bill.	Slip compulsory	Perform slip printing operation.
E048 Insert Slip Paper and retry.	Alarm when no paper is inserted in the Slip.	Insert new slip paper.
E049 CHECK memory full.	Check tracking index full/near end	Finalize and close the check number currently used.
E050 Detail memory full.	Check tracking memory full/near end	Finalize and close the check number currently used.

Prompt message	Meaning	Action
E051 CHK/TBL No. is occupied.	Attempt is made to use the <NEW CHECK> key to open a new check using a number that is already used for an existing check tracking memory.	Finalize and close the check that is currently under the number that you want to use or use a different check number.
E052 CHK/TBL No. is Busy.	Attempt to use the same check number whilst the specified number is being used in the other terminal.	Use another check number or close the check at that terminal.
E053 CHK/TBL No. is not opened.	Check number not found	Use the correct check number (if you want to reopen a check that already exists in the check tracking memory) or use <NEW CHECK> to open a new check.
E054 Out of CHK/TBL No. Range.	Check number range over	Enter correct number.
E056 Store range full.	All check number are occupied in range.	Recall the stored data.
E057 No item exists in detail.	Round repeat cannot be found in detail.	
E058 Enter post entry item.	Post entry item exists in detail.	Enter Post entry item.
E059 Press Eat-in or Take-out key.	Press eat-in or take-out key.	Press Eat-in or Takeout key.
********** E060 Printer offline.	Printer offline. "****" means ECR logical ID and printer number.	
********** E061 Printer error	Printer downed. "****" means ECR logical ID and printer number.	The contents are printed on the backup printer.
********** E061 Printer error. YES:Retry to print. NO :Backup to R/J printer. ESC:Discard data.	Printer downed. "****" means ECR logical ID and printer number.	Follow the prompt message.
********** E062 Printer paper end.	Paper near-end/end "****" means ECR logical ID and printer number.	The contents are printed on the backup printer.
********** E062 Printer paper end. YES:Retry to print. NO :Backup to R/J printer. ESC:Discard data.	Paper near-end/end "****" means ECR logical ID and printer number.	Follow the prompt message.
E064 Printer buffer full. YES:Retry to print. NO :Backup to R/J printer. ESC:Discard data.	Print buffer full at sender side	Follow the prompt message.
********** E070 Terminal out of action. Cannot print.	Down at target ECR which has printer "****" means ECR logical ID and printer number.	
********** E071 Target terminal printer BF full. YES:Retry to print. NO :Backup to R/J printer. ESC:Discard data.	Printer buffer full at target ECR which has printer "****" means ECR logical ID and printer number.	Follow the prompt message.
********** E072 Target printer terminal is busy.	Busy at target ECR which has printer "****" means ECR logical ID and printer number.	

Prompt message	Meaning	Action
********** E073 Your receipt/order may not be issued. YES:Retry to print. NO :Backup to R/J printer. ESC:Discard data.	Time out at ECR which has printer "*****" means ECR logical ID and printer number.	Follow the prompt message.
E075 Negative Balance, cannot be finalized.	Attempted finalization when balance is less than zero.	Register item(s) until the balance becomes positive amount.
E080 Electronic Journal Full Please clear E-Journal.	Electronic journal full	Reset the electronic journal memory.
E082 ***** Illegal Data *****	Illegal Electronic journal data	
E083 Cannot create E-Journal. Check Flash memory.	Electronic journal file cannot be created.	Check flash memory.
********** E105 Check/TBL tracking Master down. Please call Manager!! YES:Retry for connection. NO :Remove it from system.	CHK master down "****" means ECR logical ID.	Follow the prompt message.
********** E106 Check/TBL tracking Backup master down. Please call Manager!! YES:Retry for connection. NO :Remove it from system.	CHK BM down "****" means ECR logical ID.	Follow the prompt message.
********** E107 Both Master&Backup master down. CHK/TBL tracking or Clerk interrupt is not available.	CHK M/BM down "****" means ECR logical ID.	
********** E108 CHK/TBL Master is removed from system.	Master down then take it off from system "****" means ECR logical ID.	
********** E109 CHK/TBL Backup master is removed from system.	Backup master down then take it off from system "****" means ECR logical ID.	
E110 CHK data mismatch between Master and Backup master.	Data mismatch has occurred.	
E130 Middle of Pick up or Loan Press Cancel Key.	During picking up	Follow the prompt message.
E131 Middle of <Bill Copy> Press Cancel Key.	During bill copy	Follow the prompt message.
E133 Middle of <Media Change> Press Cancel Key.	During media change	Follow the prompt message.
E134 Middle of Clerk Transfer Press ESC Key.	During clerk transfer	Follow the prompt message.
E136 Middle of Separate Check Press ESC key.	During separate check	Follow the prompt message.
E139 Not allowed to be negative by Minus/ Coupon key.	Credit balance error	Enter proper minus/coupon amount.

Prompt message	Meaning	Action
E140 Wrong menu.	This sheet holder is prohibited by program.	Set correct sheet holder.
E141 Press <TRAY TTL> twice before finalization.	<TRAY TOTAL> key is not pressed twice before finalization.	Follow the prompt message.
E145 Arrangement syntax error.	Arrangement syntax error	Program the arrangement again.
E150 Incorrect value entry.	Incorrect entry for PGM	Enter proper value again.
E151 Incorrect Key Pressed.	Linking is incorrect.	Enter proper key again.
E152 PGM File or Memory number does not Exist.	No such file, no such record	Enter file/record number again.
E164 Employee No. is not Found in the Employee File.	Employee No. is not set in the Employee File.	Enter employee number again.
E165 Employee No. is not Clocking-in.	Employee has not done CLOCK-IN operation yet.	Perform CLOCK-IN operation.
E166 Employee No. is Occupied.	Employee who has done CLOCK-IN operation attempts to operate CLOCK-IN again.	Enter the proper employee number again.
E167 Incorrect Job code.	Employee attempts to operate CLOCK-IN with incorrect JOB code.	Enter proper job code.
E168 Your Operation is out of Schedule. Please Call Manager.	Employees operate CLOCK-IN/OUT in not allowance time.	Follow the prompt message.
E169 Work Hours Exceeded. Please Call Manager.	Overtime work.	Follow the prompt message.
E170 No Shift Remains in the Schedule. You cannot Clock-in.	There is no available shift left.	
E171 Please Break-out and Retry.	Employee attempts to operate CLOCK-OUT whilst he/she is in a break time.	Follow the prompt message.
E172 Break Hours Exceeded. Please Call Manager.	Break hours are exceeded.	Follow the prompt message.
E173 This employee is at work now.	Employee is at work without break.	
E174 This employee is taking a break now.	Employee who has not done BREAK-OUT operation attempts to operate BREAK-IN.	
E175 Please Clock-in/Break-out before you sign on. or Please Call Manager.	Sign on after you clock-in or break out.	Follow the prompt message.
E176 You cannot Clock-in. Please reset Employee Report.	Employee Report has not been reset.	Follow the prompt message.
E177 Time&Attendance Data Communication Error. Please Call Manager.	Time & Attendance Data communication error.	Follow the prompt message.
E180 IDC FILE (1) memory full. Please clear IDC data.	IDC FILE (1) memory is full of items.	Follow the prompt message.
E181 IDC FILE (2) memory full. Please clear IDC data.	IDC FILE (2) memory is full of items.	Follow the prompt message.
E182 IDC FILE (3) memory full. Please clear IDC data.	IDC FILE (3) memory is full of items.	Follow the prompt message.

Prompt message	Meaning	Action
E200 Insert CF Card.	CF card is not inserted to the slot.	Insert CF card.
E201 Format error.	CF card data or formats illegal.	Check the CF card.
E203 Insufficient memory.	Insufficient memory is remained in CF card.	Format or use a new CF card.
E205 The file already exists. Do you replace? YES:Replace the file. NO :Input new name.	File name duplication error	Follow the prompt message.
E240 Customer No. is occupied.	Attempt is made to set a customer that already exists in the customer file.	Enter proper customer No.
E241 Customer memory full.	Customer file becomes full.	Delete unnecessary customer No.
E242 Customer not found.	This customer does not exist.	Enter proper customer No.
E243 Illegal Site ID.	The site No. of the file does not coincide with the No. of the card.	Swipe the proper magnetic card.
E244 Credit limit over.	Attempt to transfer when the balance is over than the credit limit	Release credit limit by OPEN2 Make minus, void, or refund operation to decrease the balance under the credit limit. Perform finalization or cancellation.
E251 Magnetic card error.	This card cannot be read. This card format is illegal.	Swipe the magnetic card again. Swipe the proper magnetic card.
E252 Enter customer name.		Follow the prompt message.
E253 Enter address.		Follow the prompt message.
E254 Enter phone number.		Follow the prompt message.

9-2 Operation prompt

All prompt messages, together with descriptors and symbol characters for displaying / printing are contained in the list below. These messages cannot be added, modified or deleted.

Prompt message	Meaning
Data cannot be printed out. Backup to R/J printer?	Request to check the X / Z report data which cannot be printedout.
Do you want to clear data?	Confirmation to reset displayed report.
Cancel OK?	Confirmation of all void operation.
Please wait.	Please wait. ECR now processing.
Item Consolidation Mode	In the item consolidation mode.
Non Consolidation Mode	Not in the item consolidation mode.
REG Mode	Mode change : REG mode
REFUND Mode	Mode change : REF mode
REG- Mode	Mode change : REG– mode
Training	Mode change : REG2 mode
REG2 Mode	Signing on a training operator
Please Sign on.	The terminal is in signed off.
Enter Check/Table Number.	CHK# compulsory
Enter Table Number.	TBL# compulsory
Enter Number of covers.	Covers compulsory
Enter Seat Number.	Seat# compulsory
Perform Slip Printing.	Slip compulsory
Issue Guest Receipt.	GUEST RCT compulsory
Perform Validation Printing.	VLD compulsory
Perform Check Printing.	CHK-PRT compulsory
Perform Check Endorsement.	CHK-END compulsory
Operation Code?	Enter secret number for REG 2 mode.
Re_configuration...	During system reconfiguration
Re_configuration end	System reconfugiration ends
Clock-in OK?	Time and attendance clock-in operation
Clock-out OK?	Time and attendance clock-out operation
Break-in OK?	Time and attendance break-in operation
Break-out OK?	Time and attendance break-out operation
Enter cash tip amount and press <YES> key.	Time and attendance tip declaration compulsory
Communication Error	Communication error during clock-in
This procedure stops system maximum 60 sec. OK ?	Alert before flash memory clear.
Enter #	Registering Non-add after RC / PD.
Enter Alphacode!	To search the appropriate item, enter goods name.
Items not found!	Items cannot be found by item searching.

9-3 System error code

All error codes are contained in the list below. These error codes are displayed or printed on error log report.

Error code	Meaning
0010	Handler access error (software)
0011	Cannot execute handler (system configuration)
0012	Break by PC
0013	Break by ECR
0014	DSR off before receiving command packet
0015	Receive illegal command number of command packet
0016	Receive illegal character
0017	Send error (hardware)
0018	Receive error (hardware)
0019	Receive illegal data packet
0020	No response error
0021	Receive illegal command phase
0022	Received illegal packet
0023	CNET receive error
0024	Illegal termination by sender
0025	Received illegal packet during receiving data packets
0026	Not enough data packets received
0040	No “H” information
0041	No “I” information
0042	No “F” information
0044	Illegal packet format
0045	No file exists
0046	Illegal block
0047	Illegal command packet
0048	Illegal command No. (Not CMD)
0049	Illegal command No. (Not DATA)
0050	Sequence error
0051	Turn off DSR signal
0052	Received cancellation
0053	Retry over while waiting command
0054	Retry over while waiting EOT
0055	Retry over while waiting data
0056	Received EOT
0057	Retry over while waiting ACK
0058	Retry over while sending data
0059	Retry over while waiting “C”
0060	Retry over while sending response
0061	Retry over while excluding
0064	Break end
0065	Error during printing report header
0066	Error during printing report data
0067	Error during printing report data in work file
0068	Error during printing report data in consolidation file
0069	Work file clear error
0070	Consolidation file clear error
0071	Z lock error
0072	Z clear error
0073	Z lock release error
0074	Error during accumulating to consolidation file
0075	Error during copying report data from terminal memory to work
0076	Error during copying stock data to terminal memory
0077	Z lock error on satellite terminal
0078	No appropriate file is exist on satellite terminal during collection/consolidation

Error code	Meaning
0079	Z lock release error on satellite terminal
0081	Check tracking master is removed from system.
0082	Check tracking backup master is removed from system.
0128	Parameter error / Maximum length of send error
0130	Error drive
0134	Network parameter error
0138	Detect error in core system
0140	Parameter error (record length exceeds work buffer)
0141	EOF over
0144	Calculation overflow
0145	Undefined value of n_open () mode
0146	Mismatch of type when closing network
0147	Parameter error
0152	Defined NCB is not network resource
0153	Retry over by the target busy
0155	Sequence error
0156	No port exists
0158	Target port in use
0160	Error while getting priority
0161	Fail to change temporary priority
0162	Error semaphore operation to keep resource
0163	Fail to get new sled
0164	Error while getting semaphore
0165	Error to operate semaphore
0166	Error during delay
0167	Error during termination
0168	Error when resource return
0170	Error during getting task ID
0171	No code is found while search/pick up
0172	Cannot get work buffer
0173	File opened/fail to activate task
0174	No file exists
0175	ITRON service error
0176	Cannot create file
0177	Record number error
0178	Detect error while memory area opening
0179	Detect error while returning mail box / double create error
0180	Detect error while handling memory
0190	RCB is not mail box resource
0192	Error send message ID
0194	Send message length over
0197	Ending response
0198	Time out while waiting for ending response / no receive message
0202	No free FCB
0204	Memory capacity shortage
0205	Fail to create mail box
0209	Cannot find the coincide PCB resource
0210	Cannot find the coincide RCB resource
0232	ID collision when network starts
0233	Cannot find the target ID
0235	Protocol error
0247	Stop token
0248	FTP client can’t open data connection.
0249	FTP client requested file action not taken.
0250	FTP client local error in processing.
0251	FTP client syntax error

9-4. OS Fatal Error

When a fatal error occurs during an operation of the operating system, normal operation becomes impossible afterwards.
Therefore, the OS displays a message as shown below and stops the operation of ECR.
Such errors include errors of the OS (ITRON) itself, driver system errors, etc.

The values of Error No. and Error Code vary according to errors.

* These are intentional system halting errors to prevent a system runaway due to software. Types of errors may be increased in the future.

```
OS Fatal Error !!
Error No.1
Error Code -13
```

① Error No.:
Indicates the type of the error.
A different number is allocated to each of the main causes, allowing you to identify the source.

② Error Code:
Indicates details of the error that occurred, the source device, etc.
Some codes may not have any meaning depending on the error type.

③ Error No./Error Code Correspondence Table

Error No.	Error Code	Description of Error	Source of Error
-1	Error code returned by ITRON	Semaphore acquisition error	Network entry system (Net driver)
-2	Error code returned by ITRON	Mailbox creation error	TP thread (Net driver)
-3	Error code returned by ITRON	Mailbox creation error	TP thread (Net driver)
-4	Error code returned by ITRON	Semaphore acquisition error	TP thread (Net driver)
-5	Error code returned by ITRON	Mailbox creation error	TP thread (Net driver)
-6	Error code returned by ITRON	Semaphore acquisition error	TP thread (Net driver)
-7	Error code returned by ITRON	Mailbox creation error	TP thread (Net driver)
-8	Error code returned by ITRON	System error when returning unused memory (memory pool) area	TP thread (Net driver)
-9	Error code returned by ITRON	System error when returning unused memory (memory pool) area	CGS system (Net driver)
-10	Error code returned by ITRON	System error when returning unused memory (memory pool) area	CGS system (Net driver)
-11	Error code returned by ITRON	System error when returning unused memory (memory pool) area	CGS system (Net driver)
-12	Error code returned by ITRON	System error when returning unused memory (memory pool) area	CGS system (Net driver)
-13	Error code returned by ITRON	System error when returning unused memory (memory pool) area	CGS system (Net driver)
-20	Error code returned by ITRON	Mailbox send error	Network thread (Net driver)
-21	Error code returned by ITRON	Mailbox creation error	Network system (Net driver)

④ Description of Errors

(1) Semaphore acquisition error

Error No. -1 / -4 / -6

Description of phenomenon:

This is a system error in ITRON.

This phenomenon may occur when the exclusion function of ITRON is used.

Possible causes:

A software bug or an illegal operation of ITRON.

(2) Mailbox creation error

Error No. -2 / -3 / -5 / -7 / -21

Description of phenomenon:

This is a system error in ITRON.

This phenomenon may occur when a function of ITRON called Mailbox is used.

Possible causes:

A software bug or an illegal operation of ITRON.

(3) Mailbox send error

Error No. -20

Description of phenomenon:

This is a system error in ITRON.

This phenomenon may occur when a function of ITRON called Mailbox is used.

Possible causes:

A software bug or an illegal operation of ITRON.

(4) System error when returning unused memory (memory pool) area

Error No. -8 / -9 / -10 / -11 / -12 / -13

Description of phenomenon:

This is a system error in ITRON.

This phenomenon may occur when ITRON frees the reserved memory area.

This phenomenon may occur when the memory management system of ITRON is used.

Possible causes:

An abnormality of a memory chip, an illegal operation of ITRON, or a software bug.

9-5. CPU Exceptional Error

The functions of the CPU (SH series) include exception handling. If an exception other than reset and general interrupt (hereafter called “general exception”) occurs, the OS displays a message as shown below and stops the operation of ECR, because the operation after that cannot be guaranteed.

The example shown below indicates the screen displayed when “reservation instruction code exception” occurs.
The values of error no., error point and access adrs vary according to errors.

```
CPU Exceptional Error !!
error no.       180
error point     ffffd47e
access adrs     0
```

① error no.:
Indicates the exception code of the general exception.
From this code, the operation that causes the general exception is known.

② error point:
Indicates the point on the memory where the operation instruction that causes the above general exception is located (program counter).
However, an illegal address may be displayed depending on the exception code.

③ access adrs:
Indicates the address that is accessed according to the operation instruction that causes the above general exception.
However, the address is 0 (zero) and has no meaning if the access is not the cause.

④ Error Code Correspondence Table

error no.	error point	access adrs	Description of error
40	Location where error occurs	Logical address of comparison source	TLB address comparison results in address mismatch
60	Location where error occurs	Logical address of error source	TLB entry is invalid
80	Location where error occurs	Logical address of error source	Initial page write exception
A0	Location where error occurs	Logical address of error source	TLB protection exception (read)
C0	Location where error occurs	Logical address of error source	TLB protection exception (write)
E0	Location where error occurs	Address of read destination	CPU address error (read)
100	Location where error occurs	Address of write destination	CPU address error (write)
180	Location where error occurs	0	Reservation instruction code exception
1A0	Location where error occurs	0	Slot illegal instruction exception

⑤ Causes of error occurrence
(1) error no. 40: TLB address comparison results in address mismatch
(2) error no. 60: TLB entry is invalid
Description of phenomenon:
The CPU performs a conversion from logical address to physical address when accessing the external memory.
TLB is what caches that information.
If an error occurs in the process of the caching, a general exception of the CPU occurs.
Possible causes:
A malfunction of the CPU, because this is an internal operation of the CPU.

(3) error no. 80: Initial page write exception
Description of phenomenon:
This exception occurs if the address conversion table of the above TLB is illegally written.
Possible causes:
A malfunction of the CPU, because this is an internal operation of the CPU.

(4) error no. A0: TLB protection exception (read)
(5) error no. C0: TLB protection exception (write)
Description of phenomenon:
TLB is protected by setting access right. An access that violates the access right causes one of these exceptions to occur.
Possible causes:
A malfunction of the CPU, because this is an internal operation of the CPU.

(6) error no. E0: CPU address error (read)
(7) error no. 100: CPU address error (write)
Description of phenomenon:
This exception occurs if an illegal address is accessed (read or written).
Possible causes:
- An illegal address is accessed by software (a software bug).
- The address to be accessed has changed due to insufficient charge of the backup battery for RAM.

(8) error no. 180: Reservation instruction code exception
(9) error no. 1A0: Slot illegal instruction exception

Description of phenomenon:

These exceptions occur when an illegal instruction is performed.

Possible causes:

It is hard to think that this phenomenon is caused by software, because these errors occur due to an internal operation of the CPU.

This phenomenon is apt to occur when backup of RAM is not performed normally and the memory has been changed.

It is possible that the data in RAM has become illegal data.

9-6. Booster Error

An error in Booster part processing (IPL, INT or FINT) is indicated as follows:
XX: Error No.

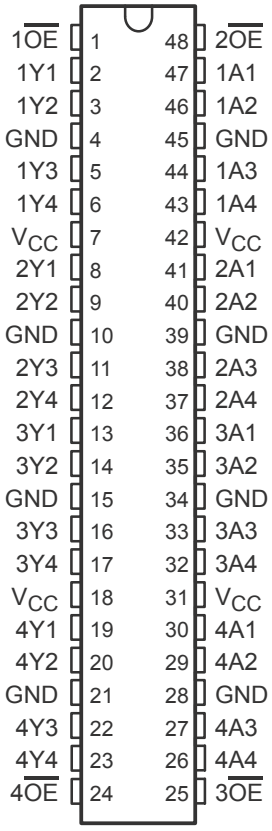
Error Code Correspondence Table

Error No.	Description of error
1	CF card is not inserted.
2	CF card has no IPL file.
3	Flash erase error
4	Flash write error
5	Reserved (error not occurring this time)
6	CF card read error (bad CF card)
7	COM1 open error (bad CPU)
8	Reserved (error not occurring this time)
9	Bad read IPL data (IPL data is not valid)
10	Checksum error (checksum of read IPL data does not match)
11	Reserved (error not occurring this time)
12	Communication error on COM1
13	Communication error on COM1 (same as 12; 12 or 13 occurs depending on timing of occurrence)

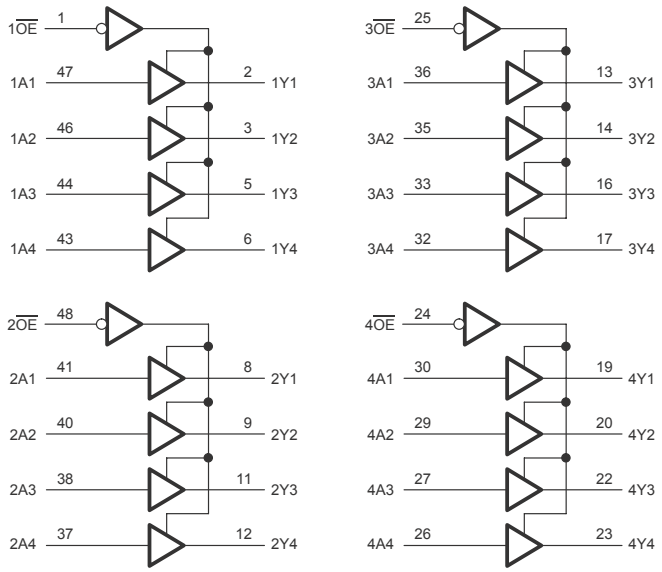
10. IC DATA

■ MAIN PCB (E820-1 PCB)

1. ALVCH16244 (IC13, 17)



logic diagram (positive logic)



terminal assignments

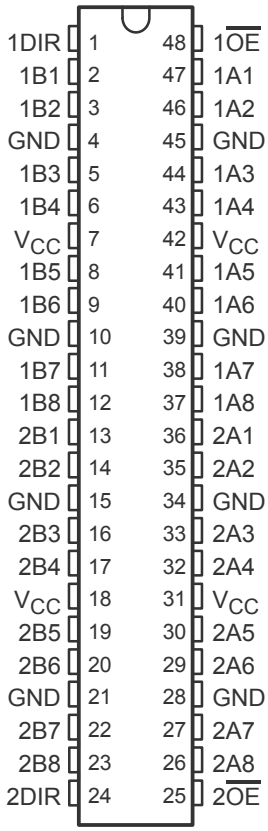
	1	2	3	4	5	6
A	$1\overline{OE}$	NC	NC	NC	NC	$2\overline{OE}$
B	1Y2	1Y1	GND	GND	1A1	1A2
C	1Y4	1Y3	V_{CC}	V_{CC}	1A3	1A4
D	2Y2	2Y1	GND	GND	2A1	2A2
E	2Y4	2Y3			2A3	2A4
F	3Y1	3Y2			3A2	3A1
G	3Y3	3Y4	GND	GND	3A4	3A3
H	4Y1	4Y2	V_{CC}	V_{CC}	4A2	4A1
J	4Y3	4Y4	GND	GND	4A4	4A3
K	$4\overline{OE}$	NC	NC	NC	NC	$3\overline{OE}$

NC No internal connection

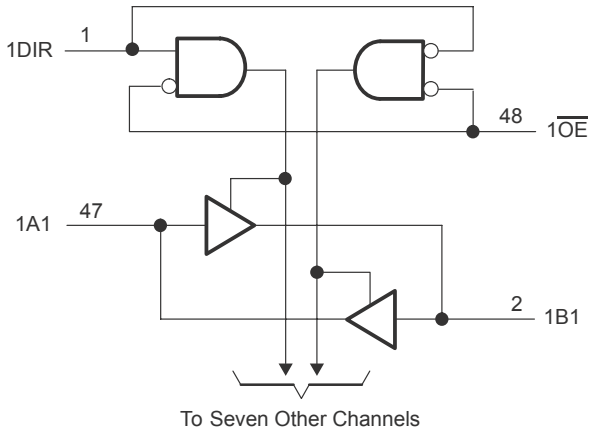
FUNCTION TABLE
(each 4-bit buffer)

INPUTS		OUTPUT
$\overline{OE}$	A	Y
L	H	H
L	L	L
H	X	Z

2. ALVCH16245 (IC8)



logic diagram (positive logic)



terminal assignments

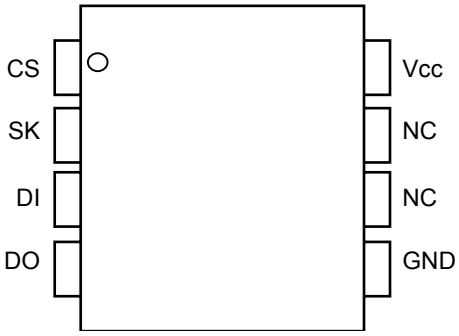
	1	2	3	4	5	6
A	1DIR	NC	NC	NC	NC	1$\overline{OE}$
B	1B2	1B1	GND	GND	1A1	1A2
C	1B4	1B3	V_{CC}	V_{CC}	1A3	1A4
D	1B6	1B5	GND	GND	1A5	1A6
E	1B8	1B7			1A7	1A8
F	2B1	2B2			2A2	2A1
G	2B3	2B4	GND	GND	2A4	2A3
H	2B5	2B6	V_{CC}	V_{CC}	2A6	2A5
J	2B7	2B8	GND	GND	2A8	2A7
K	2DIR	NC	NC	NC	NC	2$\overline{OE}$

NC No internal connection

FUNCTION TABLE
(each 8-bit section)

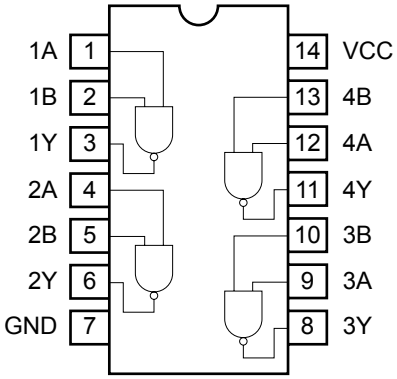
INPUTS		OPERATION
$\overline{OE}$	DIR	
L	L	B data to A bus
L	H	A data to B bus
H	X	Isolation

3. BR93L46RF (IC35)

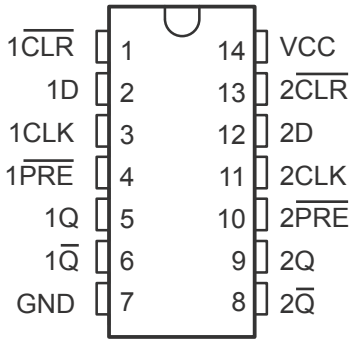


Pin Name	I/O	Function
Vcc	-	Power Supply
GND	-	GND
CS	INPUT	Chip Selct
SK	INPUT	Serial Clock Input
DI	INP	Start bit,Cord,Address,Serial data
DO	OUTPUT	Serial data input, READY/$\overline{\text{BUSY}}$ status

4. HD74LV00 (IC29)



5. HD74LV74 (IC25)

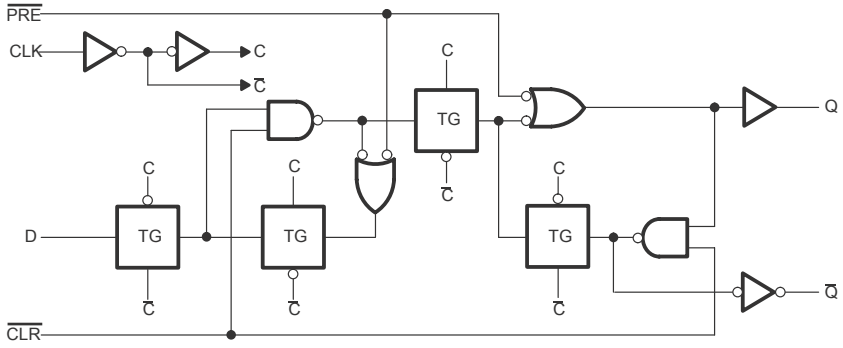


FUNCTION TABLE

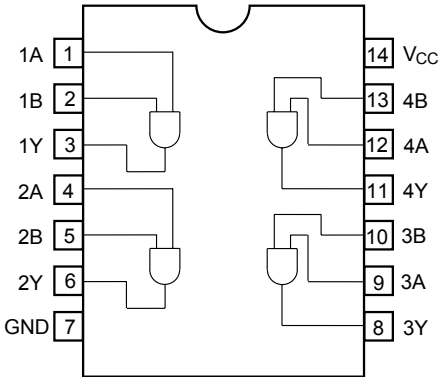
INPUTS				OUTPUTS	
$\overline{\text{PRE}}$	$\overline{\text{CLR}}$	CLK	D	Q	$\overline{\text{Q}}$
L	H	X	X	H	L
H	L	X	X	L	H
L	L	X	X	H*	H*
H	H		H	H	L
H	H		L	L	H
H	H	L	X	Q_0	$\overline{Q}_0$

* This configuration is nonstable; that is, it does not persist when $\overline{\text{PRE}}$ or $\overline{\text{CLR}}$ returns to its inactive (high) level.

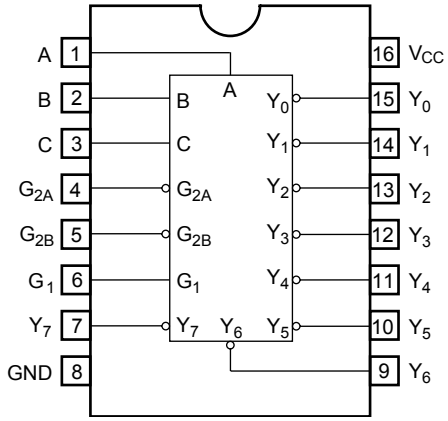
logic diagram, each flip-flop (positive logic)



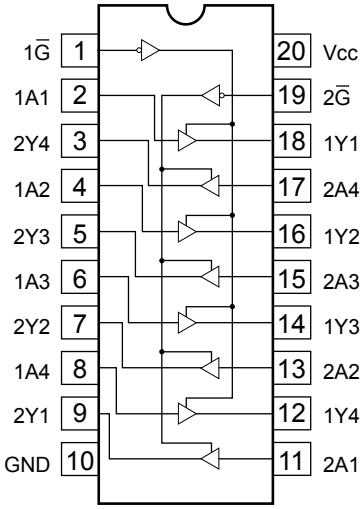
6. HD74LVC08 (IC20)



7. HD74LVC138 (IC11)



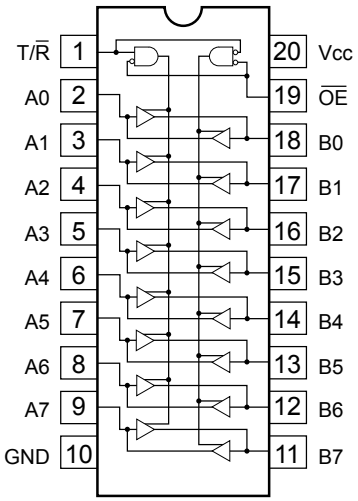
8. HD74LVC244 (IC4,5)



Inputs		Output Y
$\overline{G}$	A	
H	X	Z
L	H	H
L	L	L

H : High
L : Low
X : Don't care
Z : High impedance

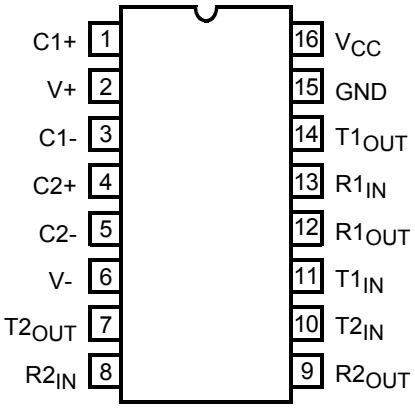
9. HD74LVC245 (IC6,7)

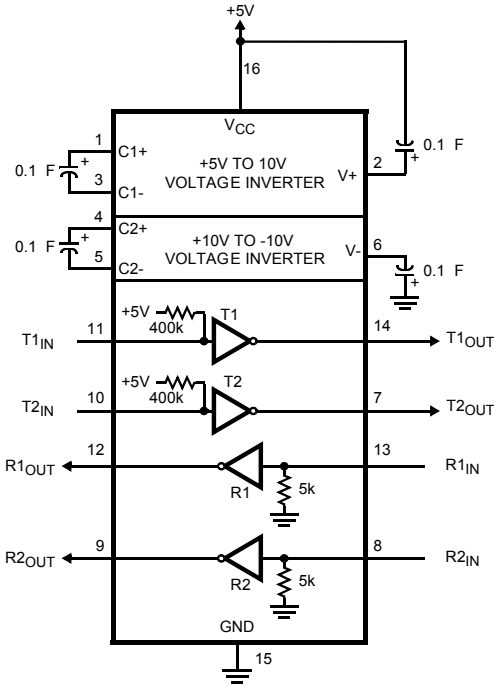


Inputs		Output Y
$\overline{OE}$	T / $\overline{R}$	
L	L	Bus B Data to Bus A
L	H	Bus A Data to Bus B
H	X	Z

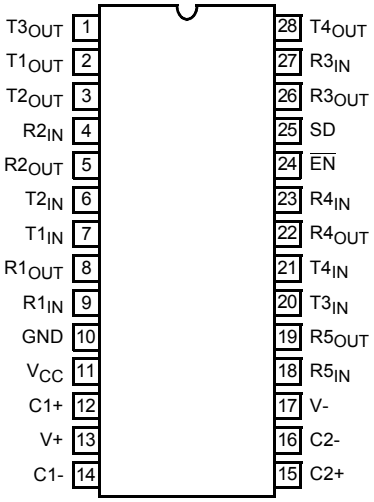
H : High
L : Low
X : Don t care
Z : High impedance

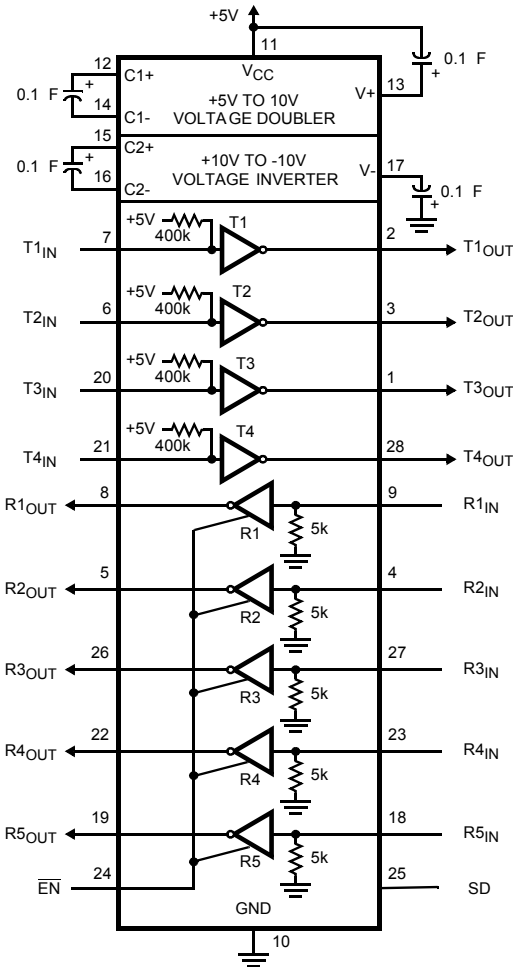
10. HIN202CBNZ-T (IC24)



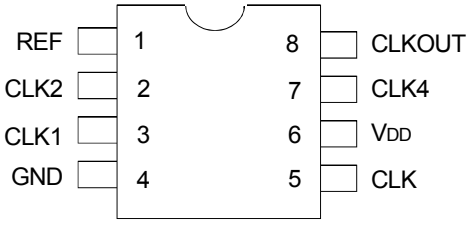


11. HIN211CAZ-T (IC3,9,23,27)

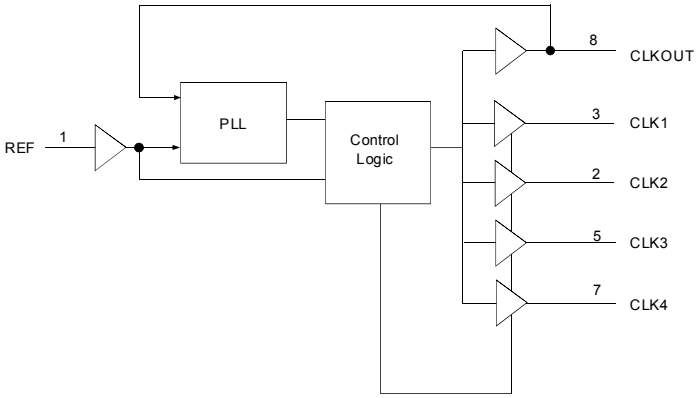




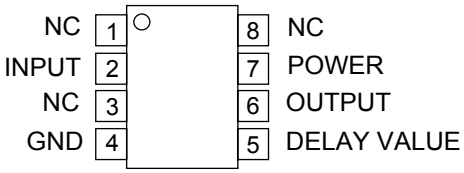
12. IDT2305 (IC40)

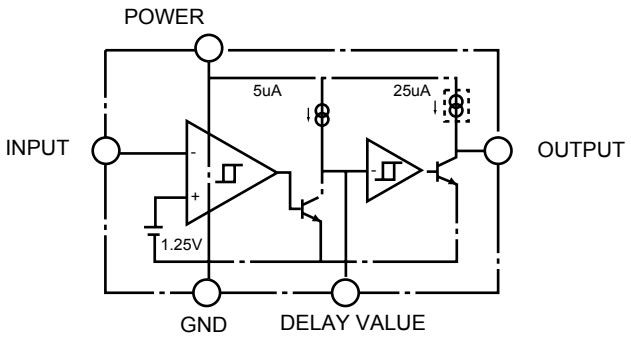


FUNCTIONALBLOCKDIAGRAM

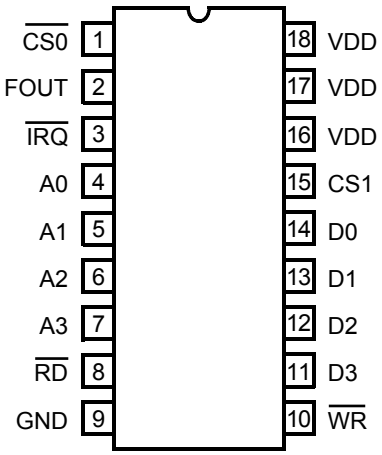


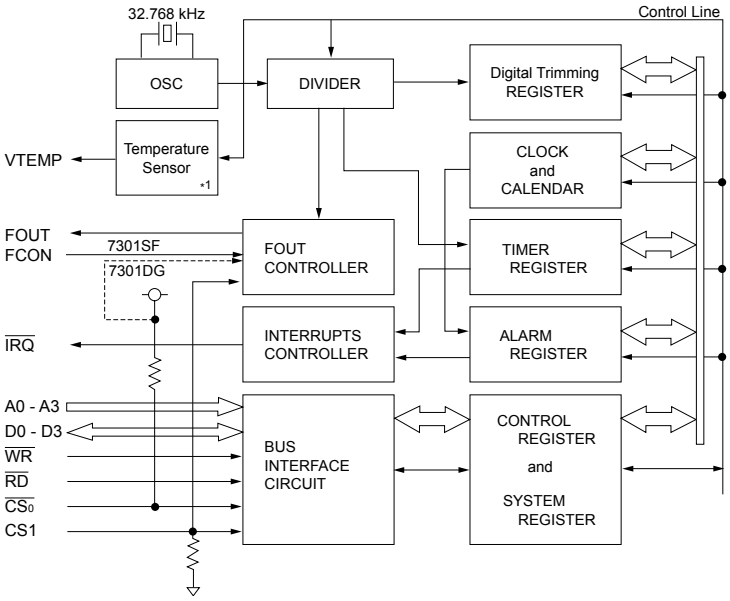
13. M51957BFP (IC33)



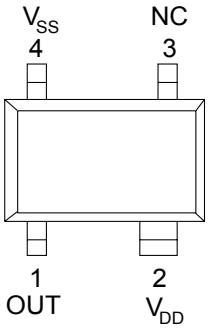


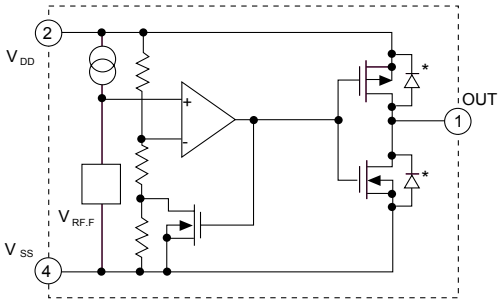
14. RTC-7301DG (IC19)





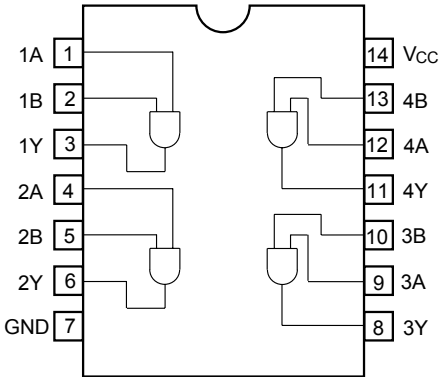
15. S-80828CLNB-B6N-T2 (IC55)



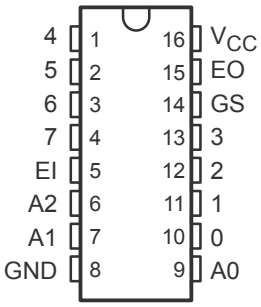


16. SG-8002JFSCB14.318M (IC41): Programmable High-Frequency Crystal Oscillator (14.318 MHz)
    SG-8002JFSCB33M (IC43): Programmable High-Frequency Crystal Oscillator (33 MHz)

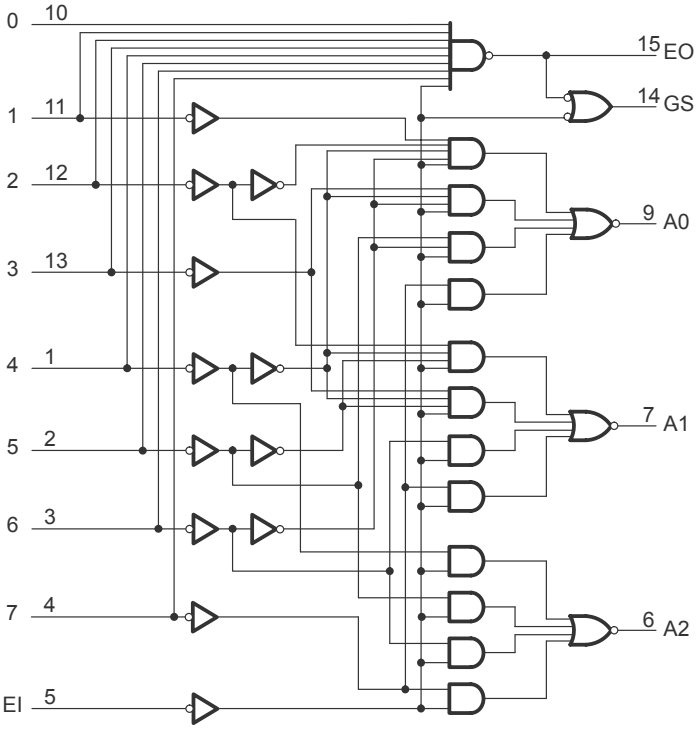
17. SN74AHCT08 (IC49)



18. SN74HC148 (IC32)



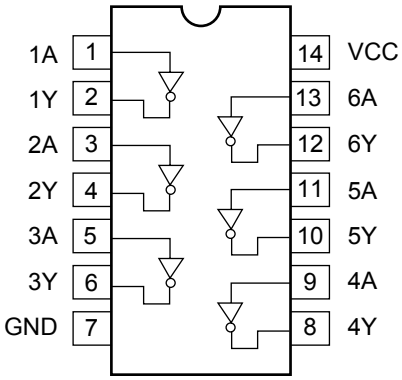
logic diagram (positive logic)



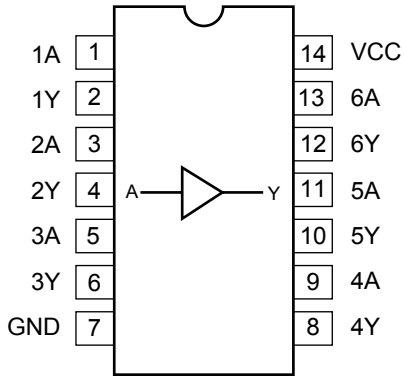
FUNCTION TABLE

INPUTS									OUTPUTS				
EI	0	1	2	3	4	5	6	7	A2	A1	A0	GS	EO
H	X	X	X	X	X	X	X	X	H	H	H	H	H
L	H	H	H	H	H	H	H	H	H	H	H	H	L
L	X	X	X	X	X	X	X	L	L	L	L	L	H
L	X	X	X	X	X	X	L	H	L	L	H	L	H
L	X	X	X	X	X	L	H	H	L	H	L	L	H
L	X	X	X	X	L	H	H	H	L	H	H	L	H
L	X	X	X	L	H	H	H	H	H	L	L	L	H
L	X	X	L	H	H	H	H	H	H	L	H	L	H
L	X	L	H	H	H	H	H	H	H	H	L	L	H
L	L	H	H	H	H	H	H	H	H	H	H	L	H

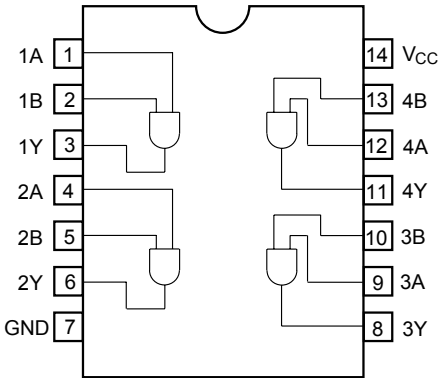
19. SN74LV04APWR (IC10)



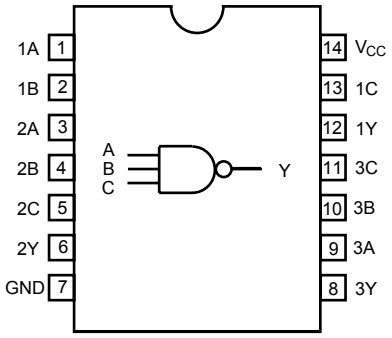
20. SSN74LV07A (IC37)



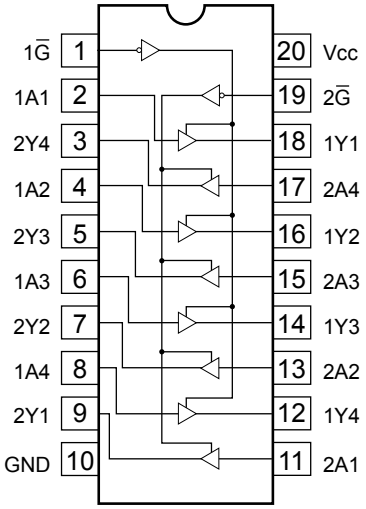
21. SN74LV08APWR (IC47,57)



22. SN74LV10APWR (IC30)



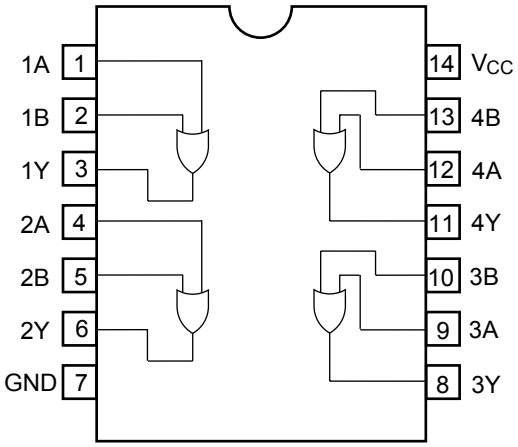
23. SN74LV244APWR (IC22,38,39)



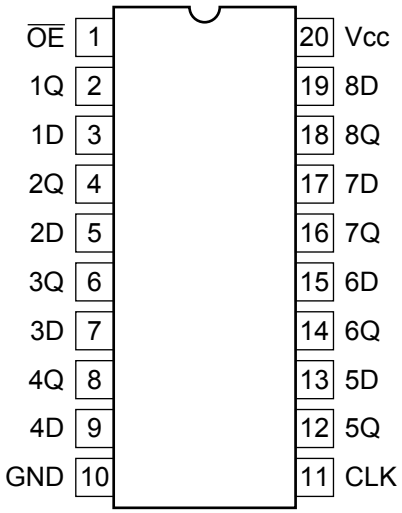
Inputs		Output Y
$\overline{G}$	A	
H	X	Z
L	H	H
L	L	L

H : High
L : Low
X : Don't care
Z : High impedance

24. SN74LV32APWR (IC48,52~54)

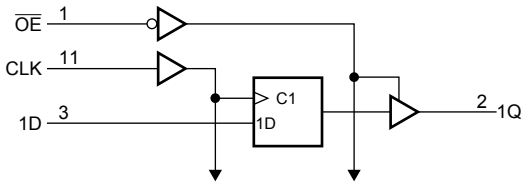


25. SN74LV374APWR (IC16,21,50,51)

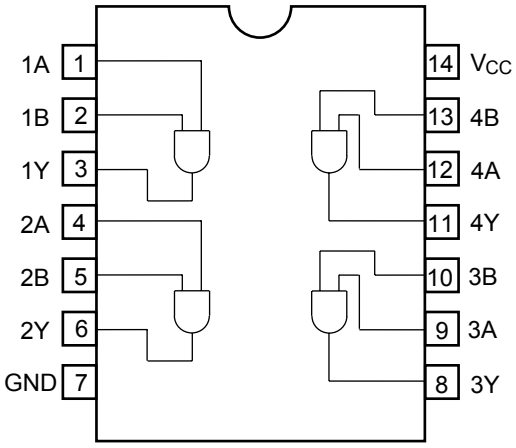


FUNCTION TABLE

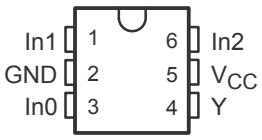
INPUTS			OUTPUT
$\overline{OE}$	CLK	D	Q
L		H	H
L		L	L
L	L	X	Q_0
H	X	X	Z



26. SN74LVC1G08 (IC56)



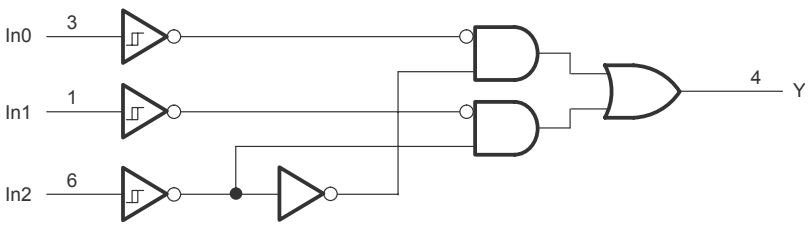
27. SN74LVC1G97 (IC58,59)



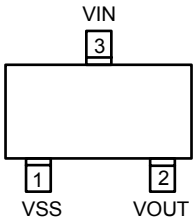
FUNCTION TABLE

INPUTS			OUTPUT
In2	In1	In0	Y
L	L	L	L
L	L	H	L
L	H	L	H
L	H	H	H
H	L	L	L
H	L	H	H
H	H	L	L
H	H	H	H

logic diagram (positive logic)



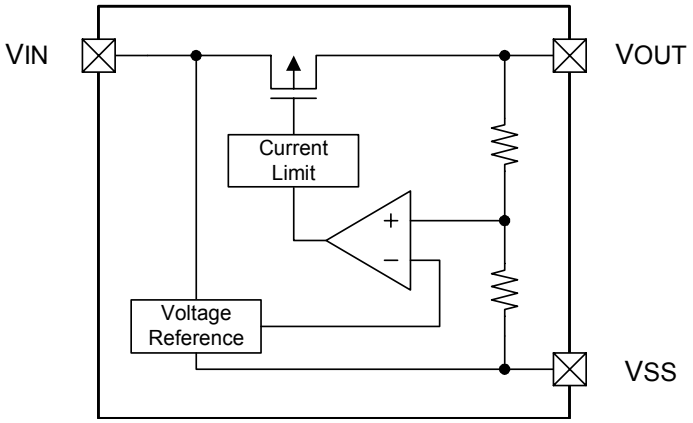
28. XC6206P182MR (IC34)



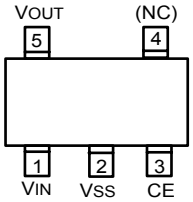
PIN ASSIGNMENT

PIN NUMBER	PIN NAME	FUNCTION
1	VSS	Ground
2	VOUT	Output
3	VIN	Power Input

BLOCK DIAGRAM



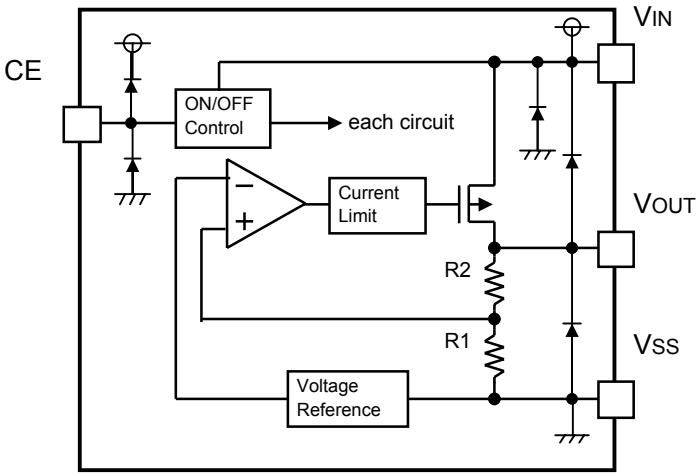
29. XC6219B332MR (IC46)



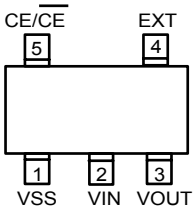
PIN ASSIGNMENT

PIN NUMBER	PIN NAME	FUNCTION
1	VIN	Input
2	VSS	Ground
3	CE	ON/OFF Control
4	NC	No Connection
5	VOUT	Output

BLOCK DIAGRAM



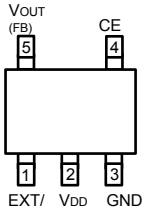
30. XC62EP1502MR (IC42)

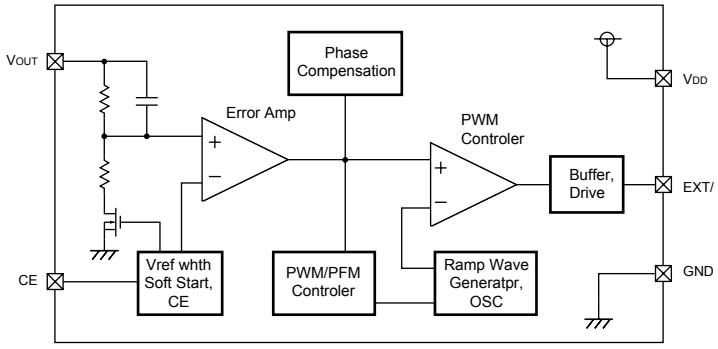


PIN ASSIGNMENT

PIN NUMBER	PIN NAME	FUNCTION
1	VSS	Ground
2	VIN	Supply voltage input
3	VOUT	Regulated voltage output
4	EXT	Base current control
5	CE/$\overline{CE}$	Chip enable

31. XC6365A363MR (IC2)

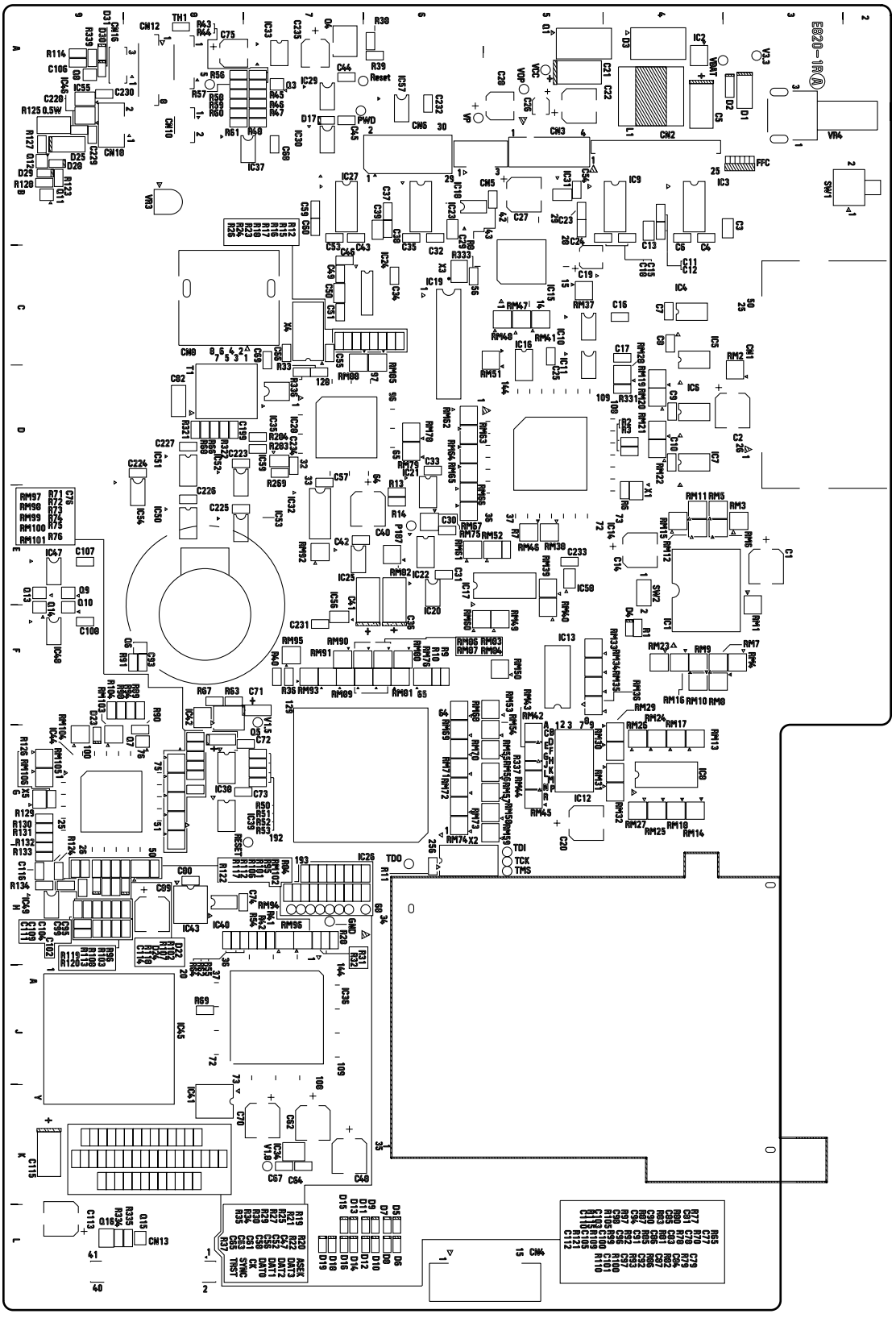




11. PCB LAYOUT

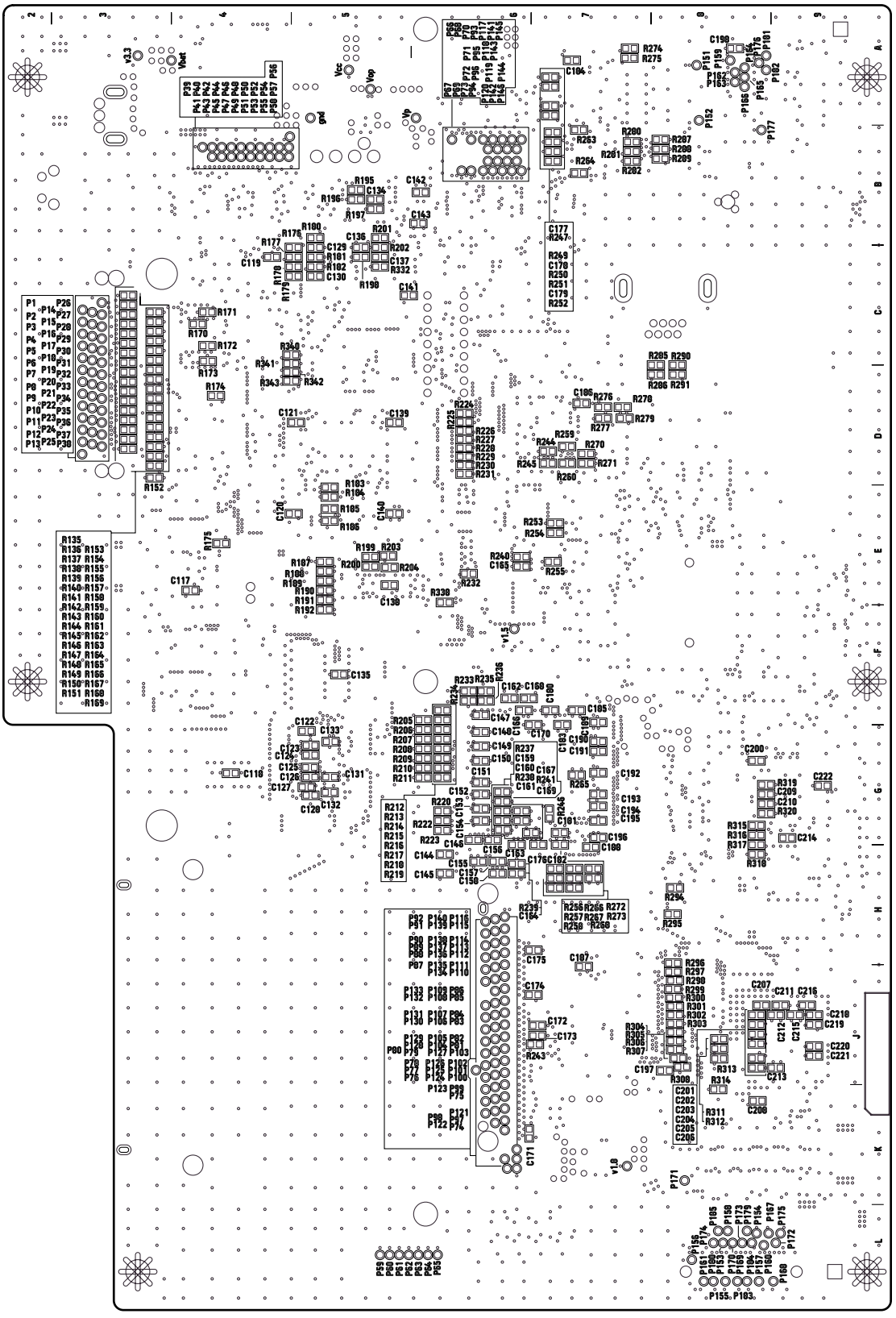
MAIN PCB (E819-1 PCB)

(TOP VIEW)



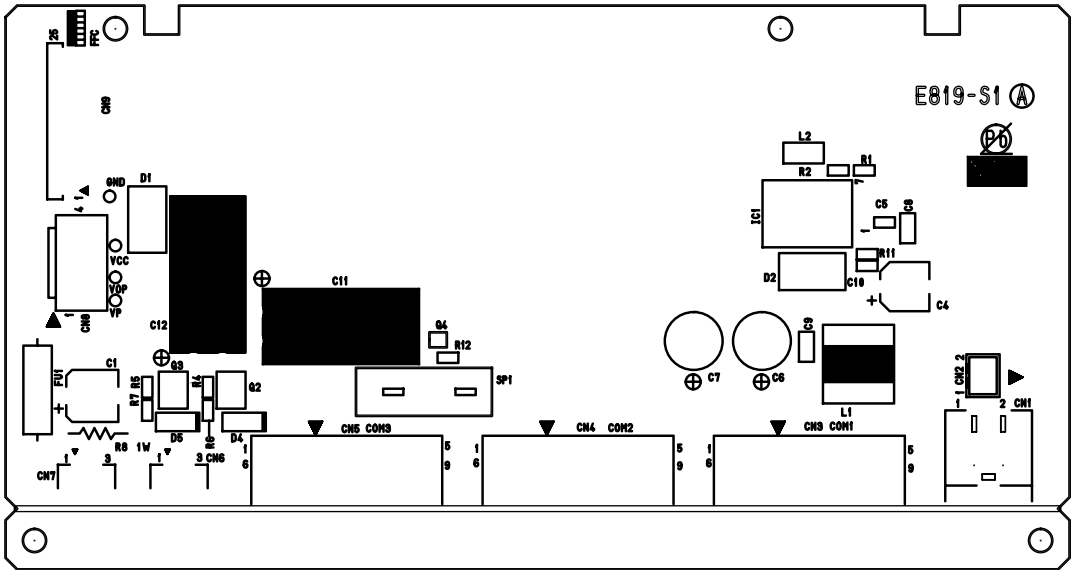
MAIN PCB (E819-1 PCB)

(BOTTOM VIEW)

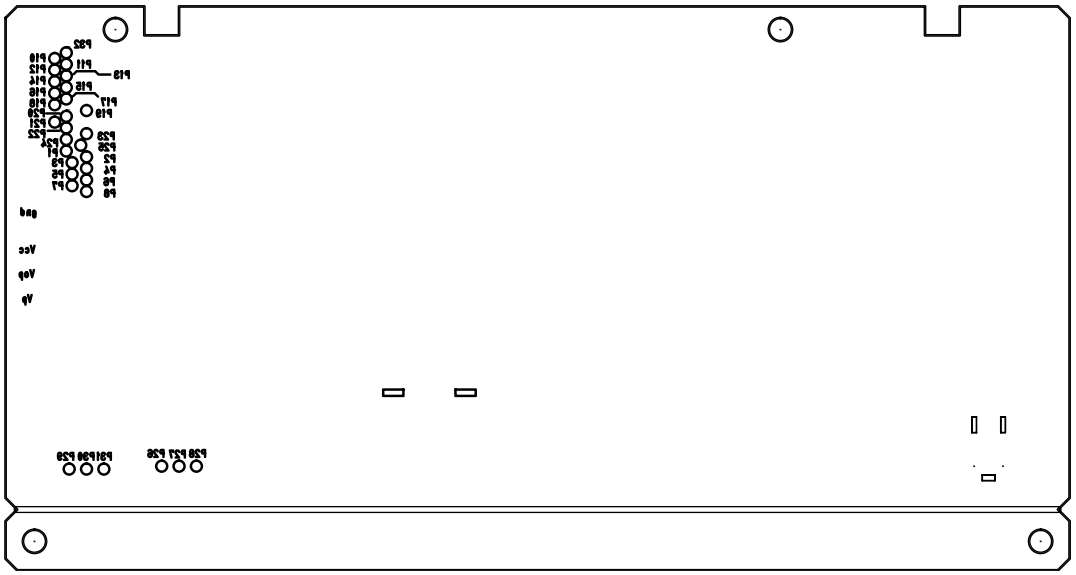


INTERFACE PCB (E819-S1 PCB)

(TOP VIEW)

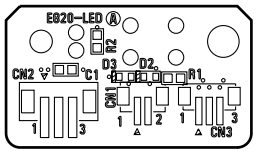


(BOTTOM VIEW)

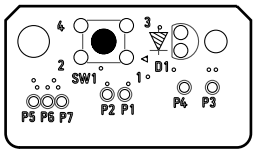


LED PCB (E820-LED PCB)

(TOP VIEW)



(BOTTOM VIEW)



12. CIRCUIT DIAGRAM

MODEL : QT-6100

(EX-819)

CONTENTS

1. MAIN PCB CIRCUIT
    - 2-1.MAIN PCB CIRCUIT (1/11) 94
    - 2-2.MAIN PCB CIRCUIT (2/11) 95
    - 2-3.MAIN PCB CIRCUIT (3/11) 96
    - 2-4.MAIN PCB CIRCUIT (4/11) 97
    - 2-5.MAIN PCB CIRCUIT (5/11) 98
    - 2-6.MAIN PCB CIRCUIT (6/11) 99
    - 2-7.MAIN PCB CIRCUIT (7/11) 100
    - 2-8.MAIN PCB CIRCUIT (8/11) 101
    - 2-9.MAIN PCB CIRCUIT (9/11) 102
    - 2-10.MAIN PCB CIRCUIT (10/11) 103
    - 2-11.MAIN PCB CIRCUIT (11/11) 104

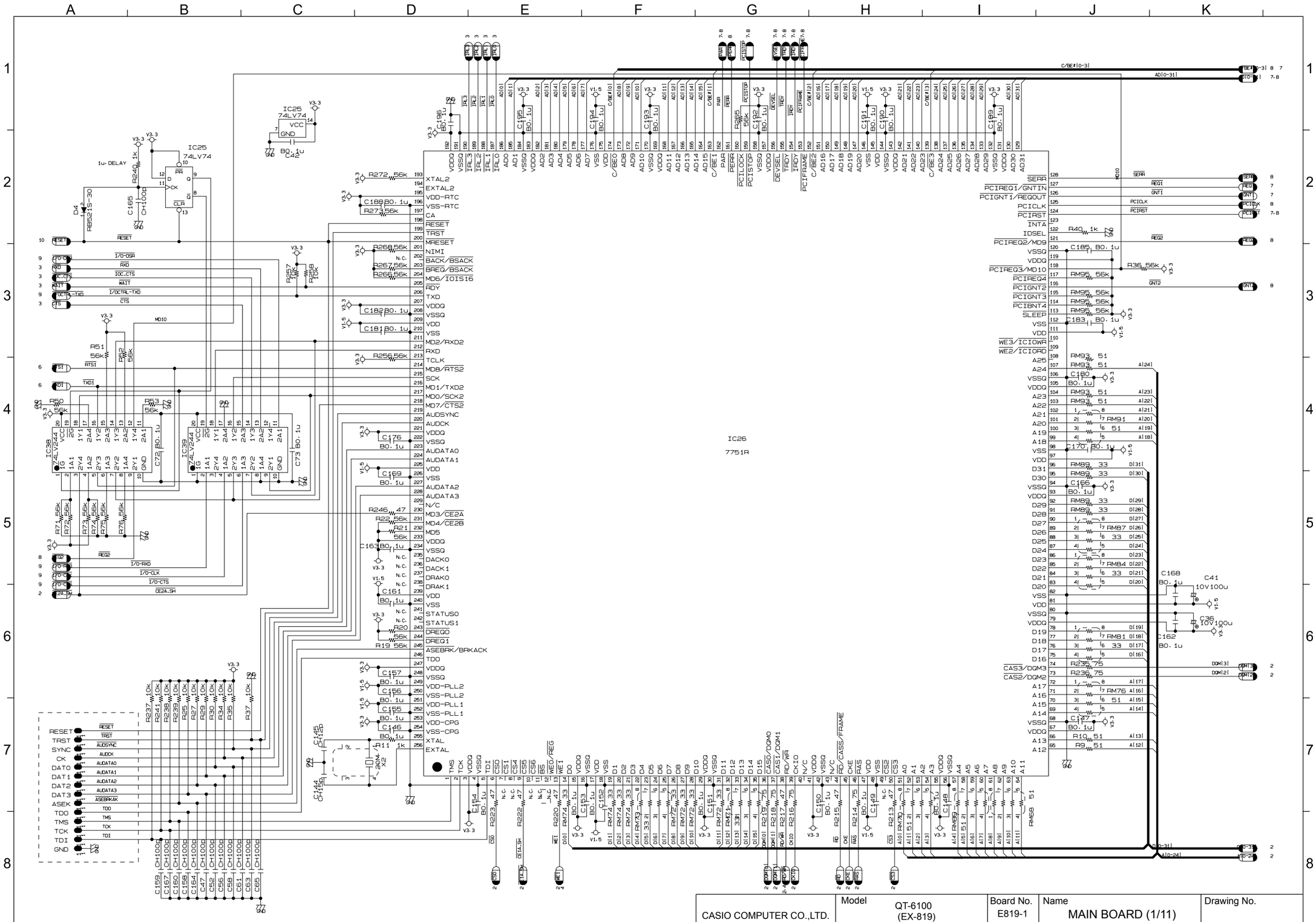
2. POWER SOUCE PCB CIRCUIT 105

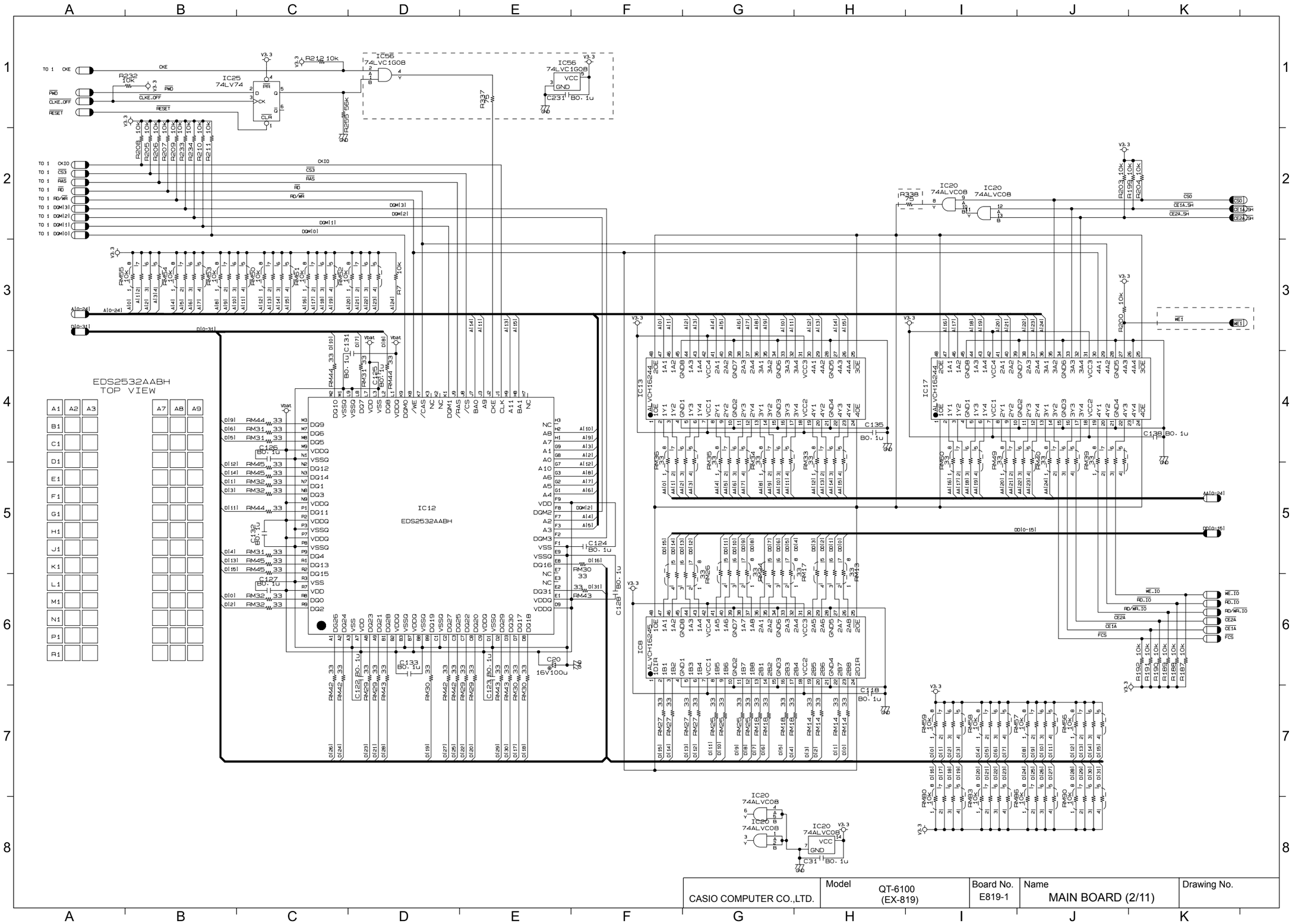
3. LED PCB CIRCUIT 106

4. QT-6060D

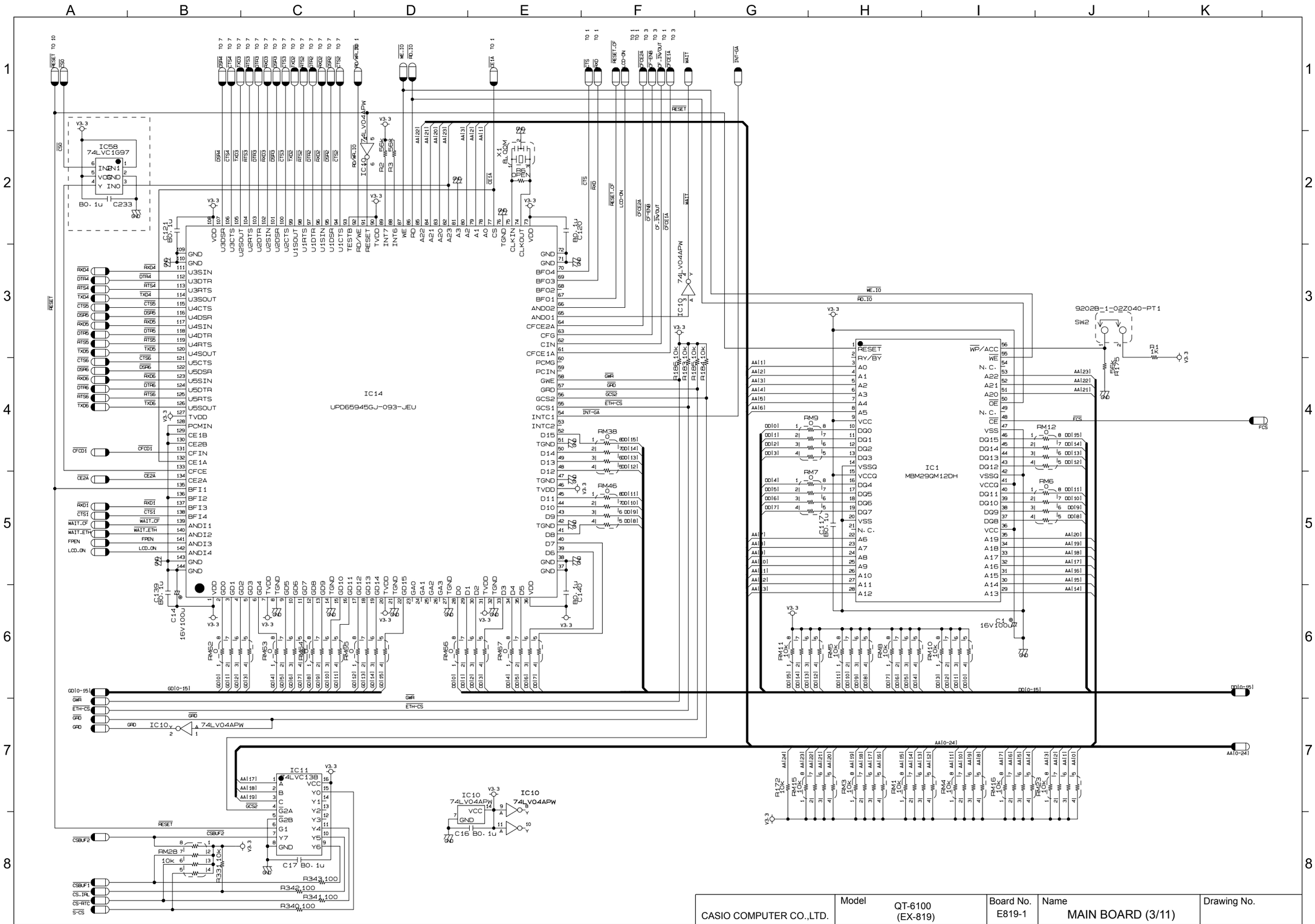
    MAIN PCB CIRCUIT 107

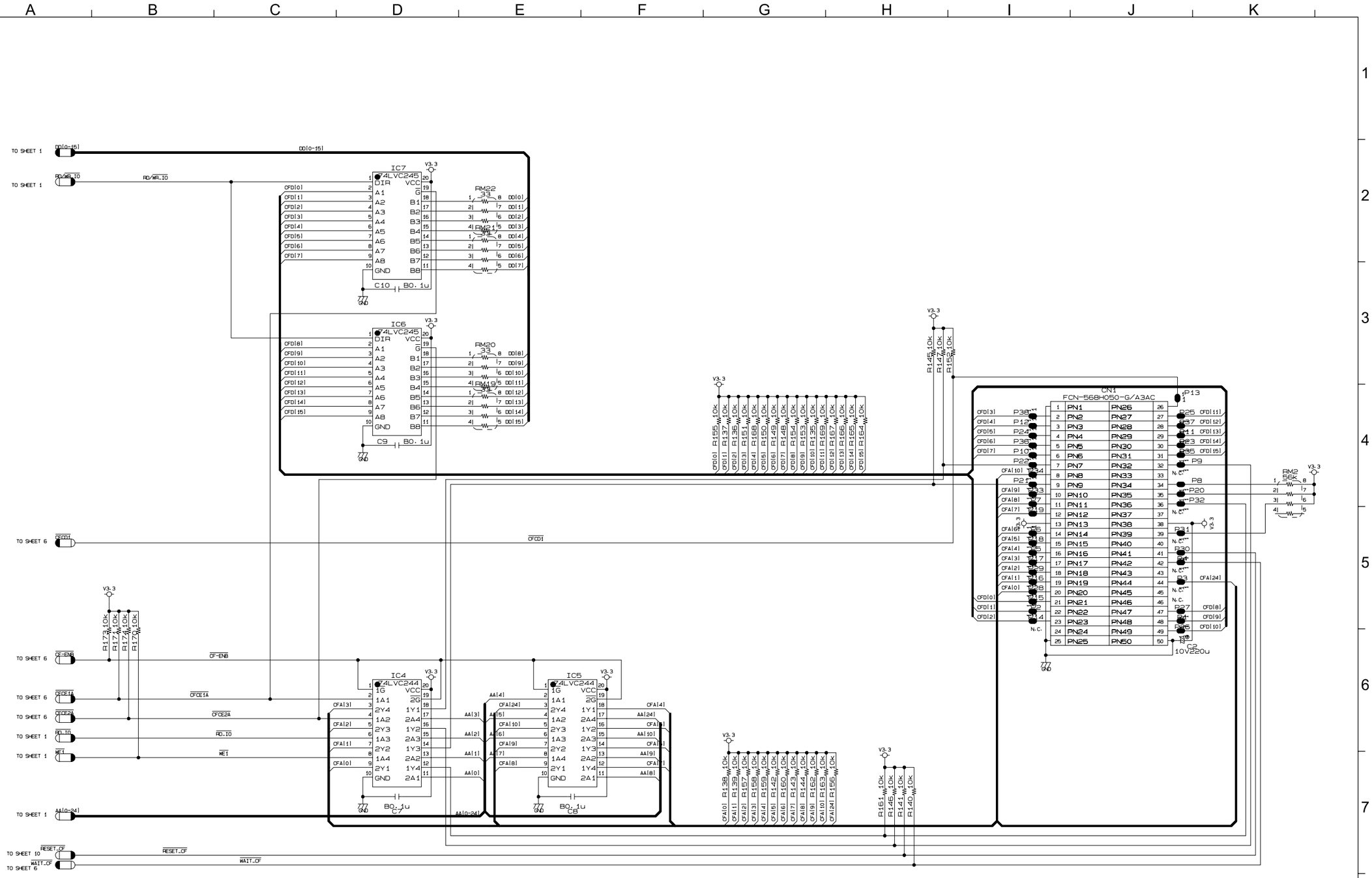
    SUB PCB CIRCUIT 109


IC26
7751R
IC25
74LV74
IC38
74LV244
IC39
74LV244
1u DELAY
RESET
TRST
SYNC
CK
DATO
DAT1
DAT2
DAT3
ASEK
TDO
TMS
TCK
TDI
GND
I/O-DSR
RXD
IOC.CTS
WAIT
I/OCTRL-TXD
CTS
I/O-RXD
I/O-CLK
I/O-CTS
REQ2
CASIO COMPUTER CO.,LTD.
Model
QT-6100
(EX-819)
Board No.
E819-1
Name
MAIN BOARD (1/11)
Drawing No.

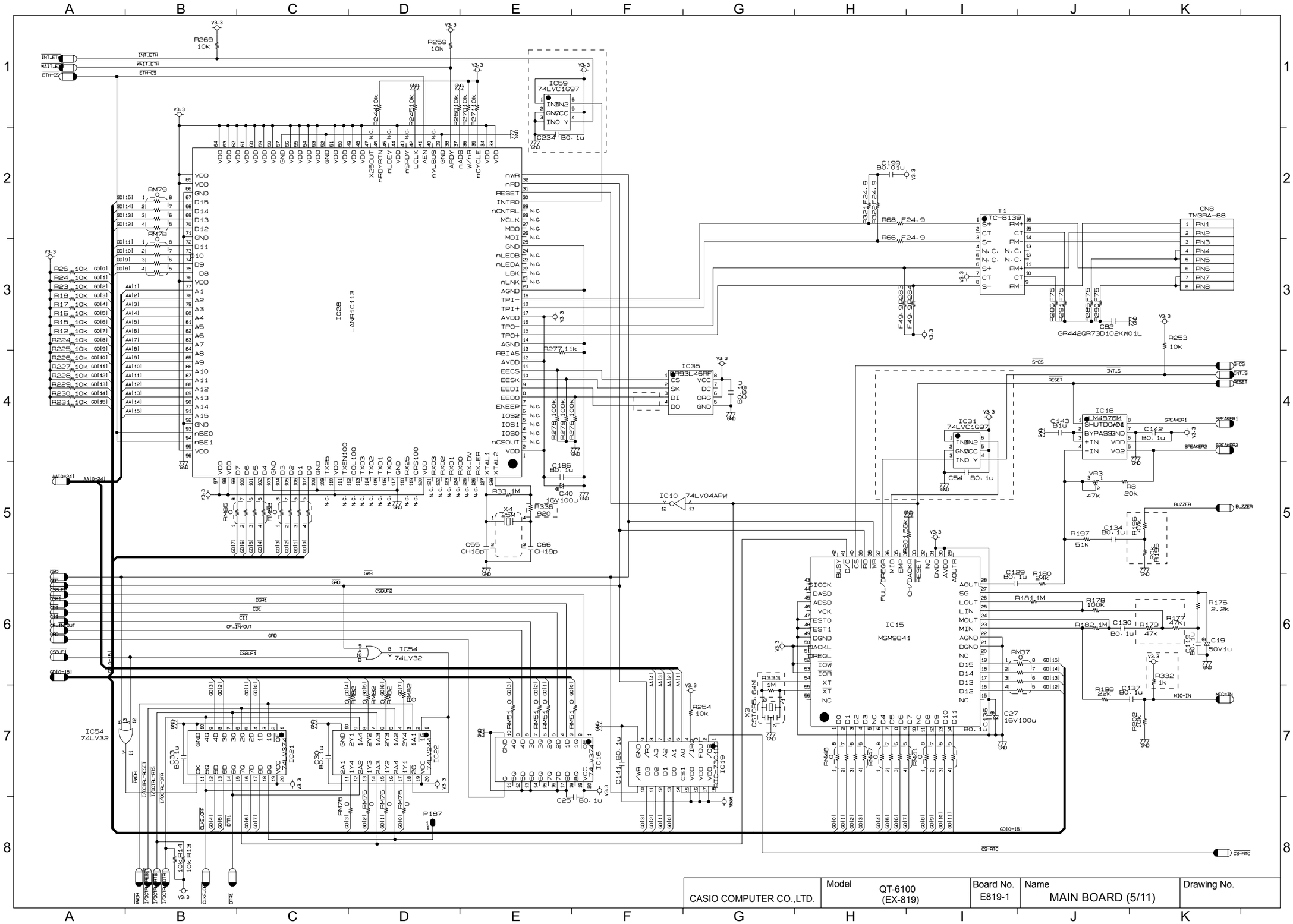


CASIO COMPUTER CO.,LTD.	Model QT-6100 (EX-819)	Board No. E819-1	Name MAIN BOARD (2/11)	Drawing No.

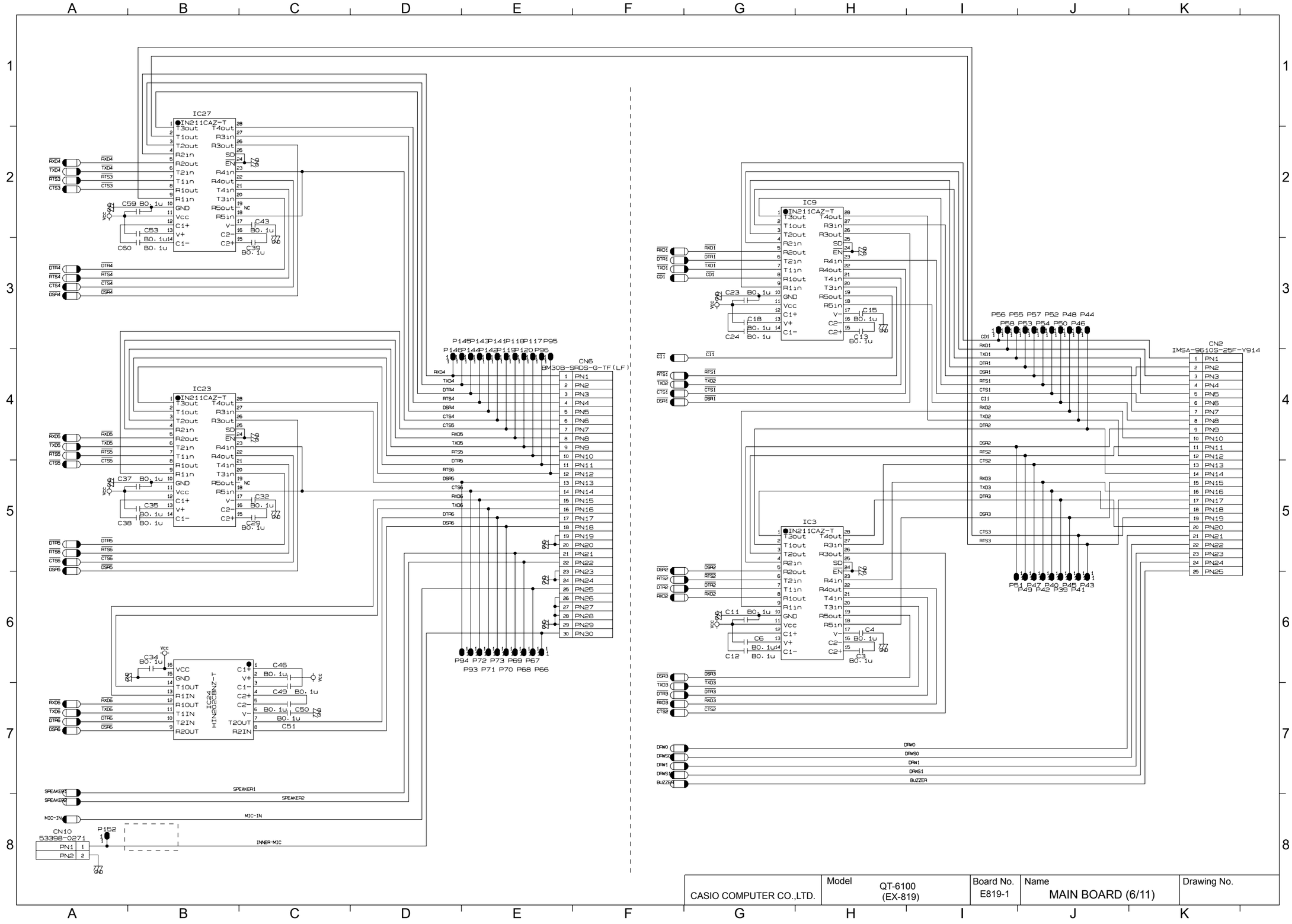

IC14
UPD65945GJ-093-JEU
IC1
MBM29QM12DH
IC58
74LVC1697
IC11
74LVC138
IC10
74LV04APW
X1
32.768K
SW2
92028-1-02Z040-PT1
CASIO COMPUTER CO.,LTD.
Model
QT-6100
(EX-819)
Board No.
E819-1
Name
MAIN BOARD (3/11)
Drawing No.

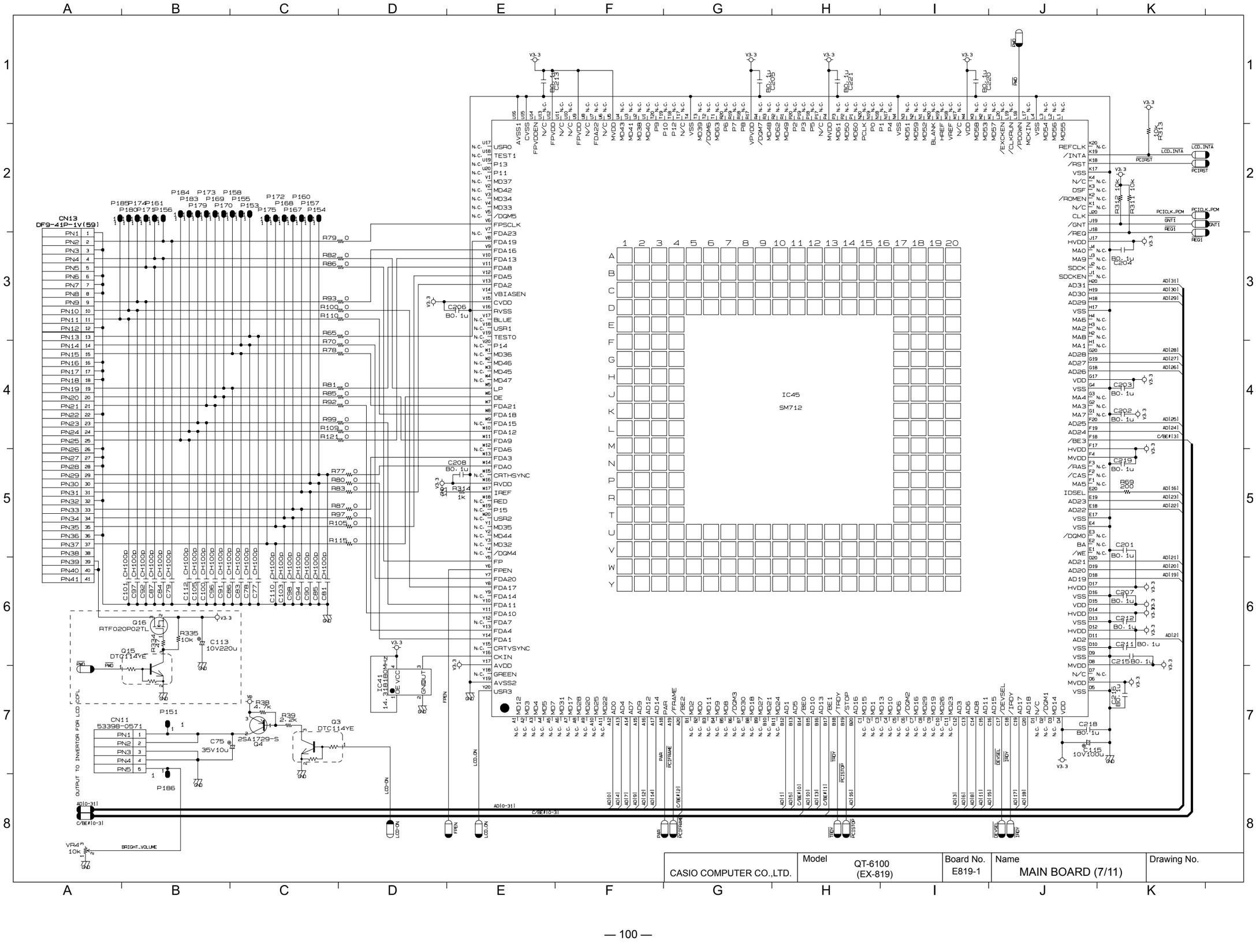


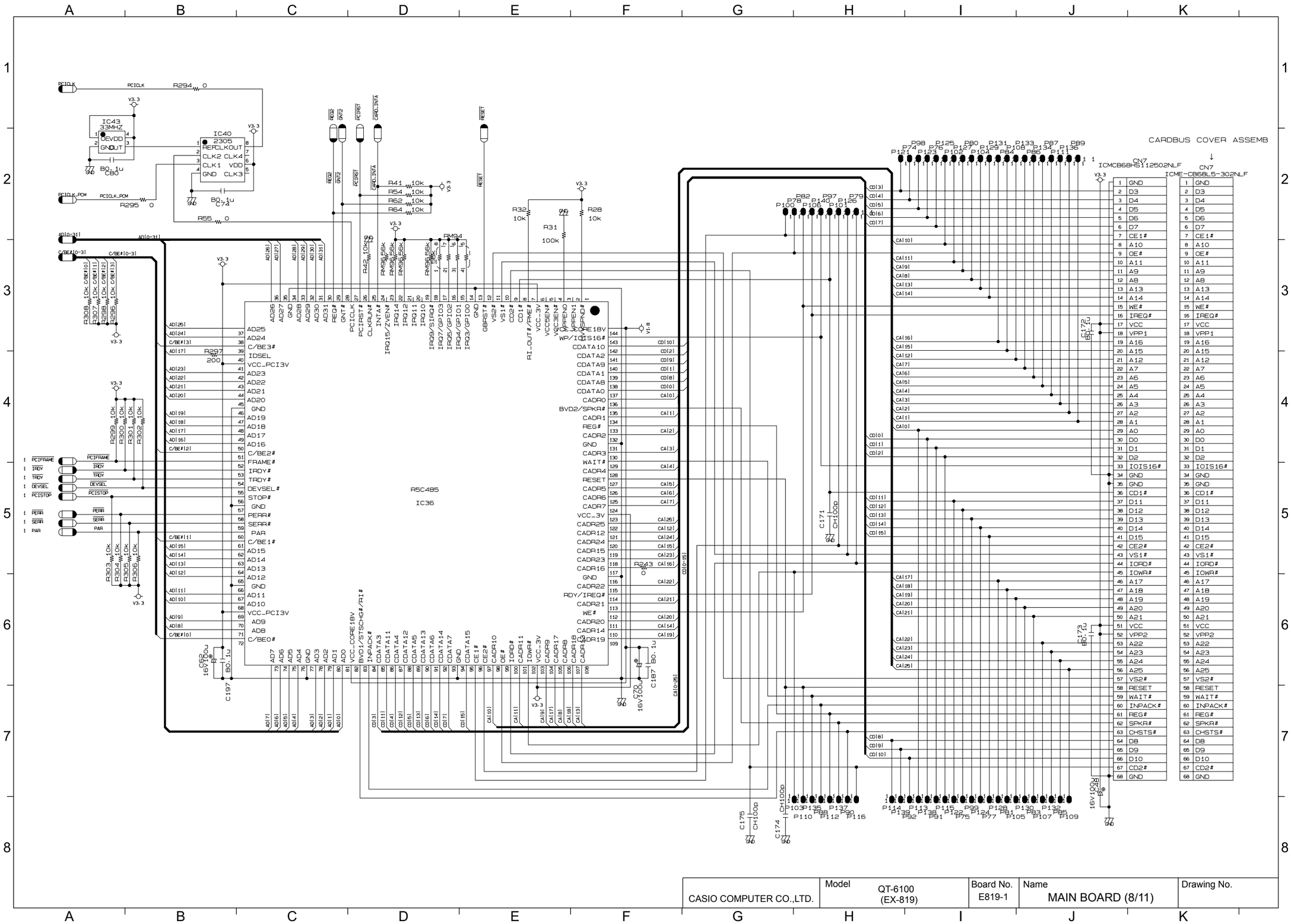
CASIO COMPUTER CO.,LTD.	Model QT-6100 (EX-819)	Board No. E819-1	Name MAIN BOARD (4/11)	Drawing No.



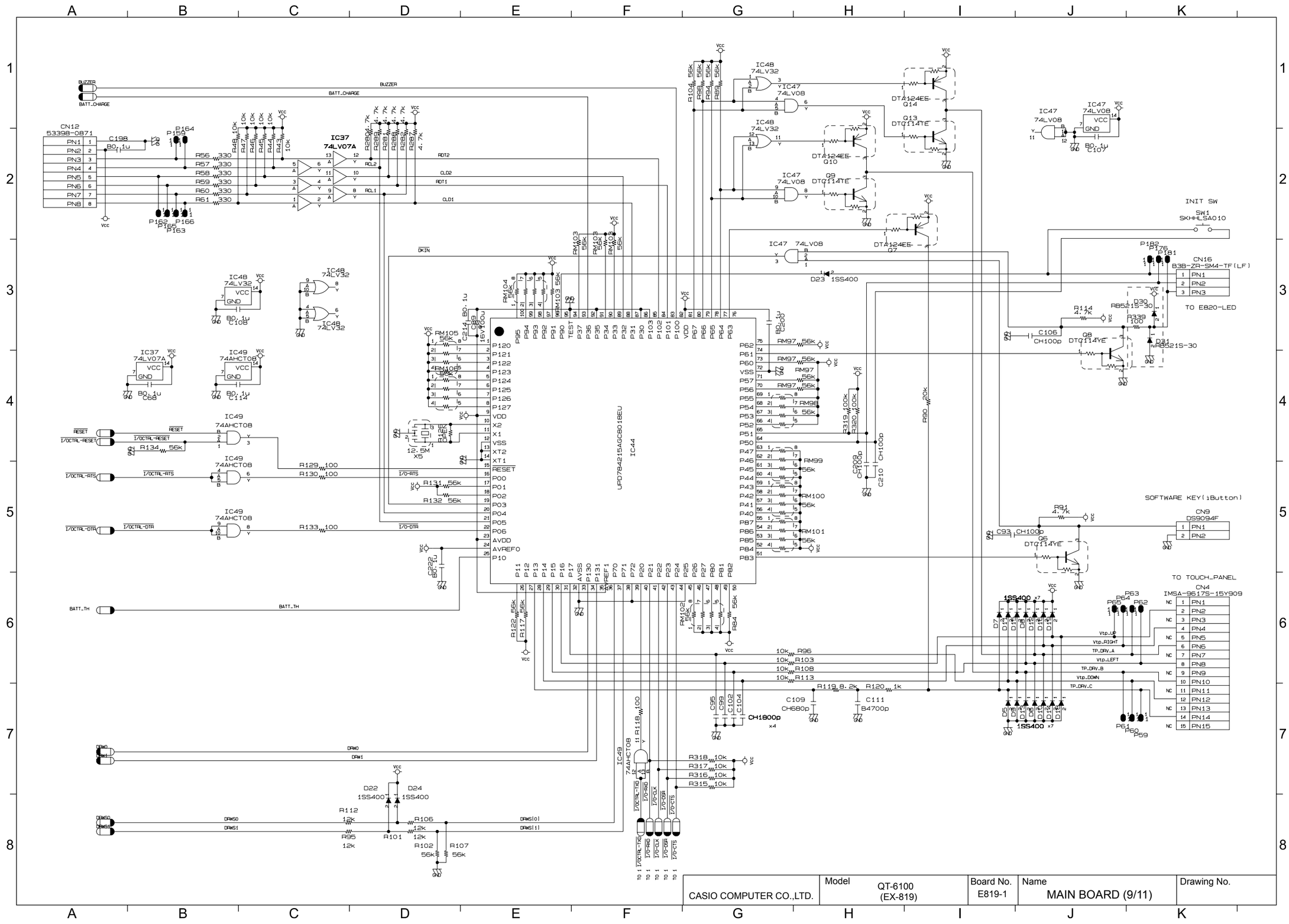
CASIO COMPUTER CO.,LTD.	Model QT-6100 (EX-819)	Board No. E819-1	Name MAIN BOARD (5/11)	Drawing No.

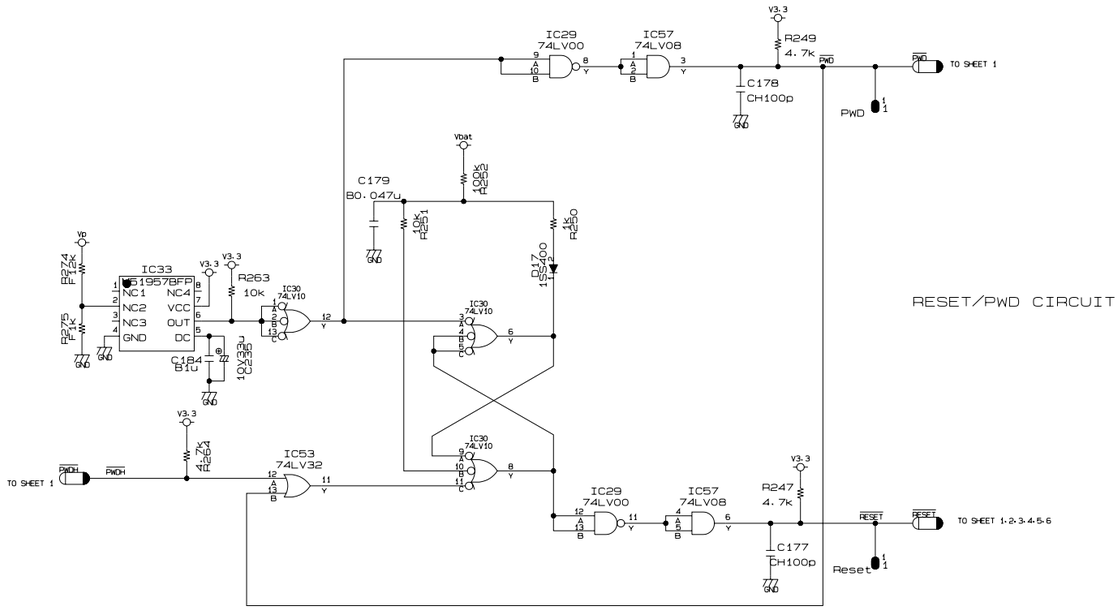

IC27
IN211CAZ-T
IC9
IN211CAZ-T
IC23
IN211CAZ-T
IC3
IN211CAZ-T
IC24
HIN202ENZ-T
CN6
BM30B-SRDS-G-TF(LF)
CN2
IMSA-9610S-25F-Y914
CN10
53398-0271
P152
SPEAKER1
SPEAKER2
MIC-IN
INNER-MIC
BUZZER
CASIO COMPUTER CO.,LTD.
Model
QT-6100
(EX-819)
Board No.
E819-1
Name
MAIN BOARD (6/11)
Drawing No.

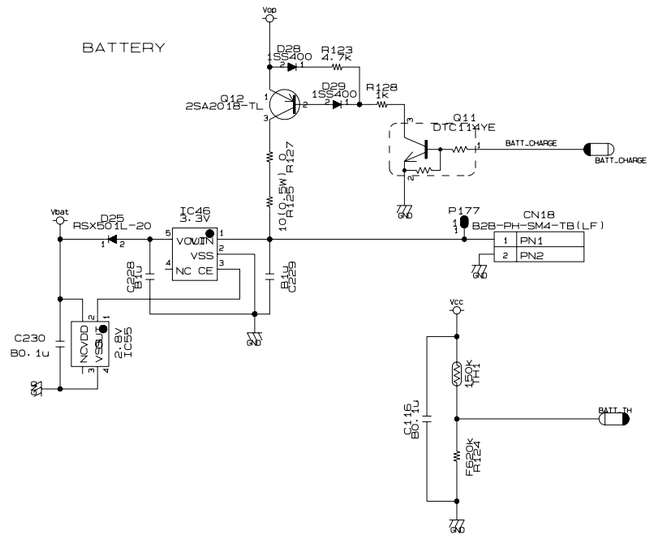

CN13
DF9-41P-1V(59)
IC45
SM712
CN11
53398-0571
OUTPUT TO INVERTOR FOR LCD CCFL
BRIGHT_VOLUME
LCD_INTA
PCIRST
PCICLK_PCM
GNT1
REQ1
CASIO COMPUTER CO.,LTD.
Model
QT-6100
(EX-819)
Board No.
E819-1
Name
MAIN BOARD (7/11)
Drawing No.

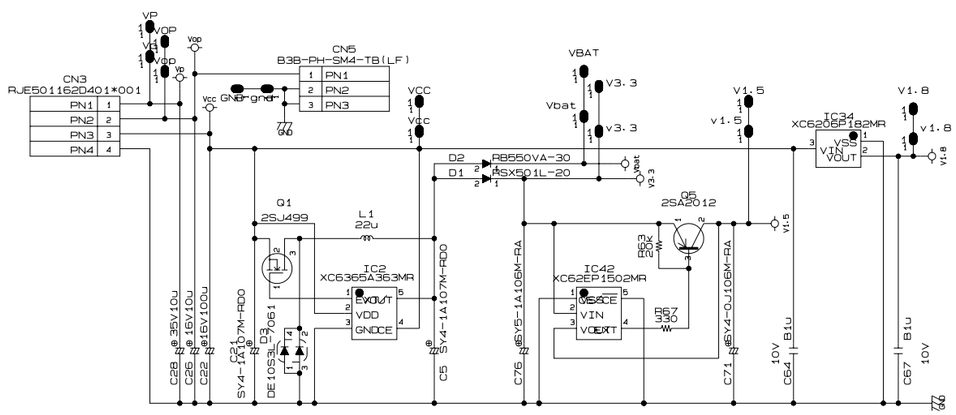


CASIO COMPUTER CO.,LTD.	Model QT-6100 (EX-819)	Board No. E819-1	Name MAIN BOARD (8/11)	Drawing No.

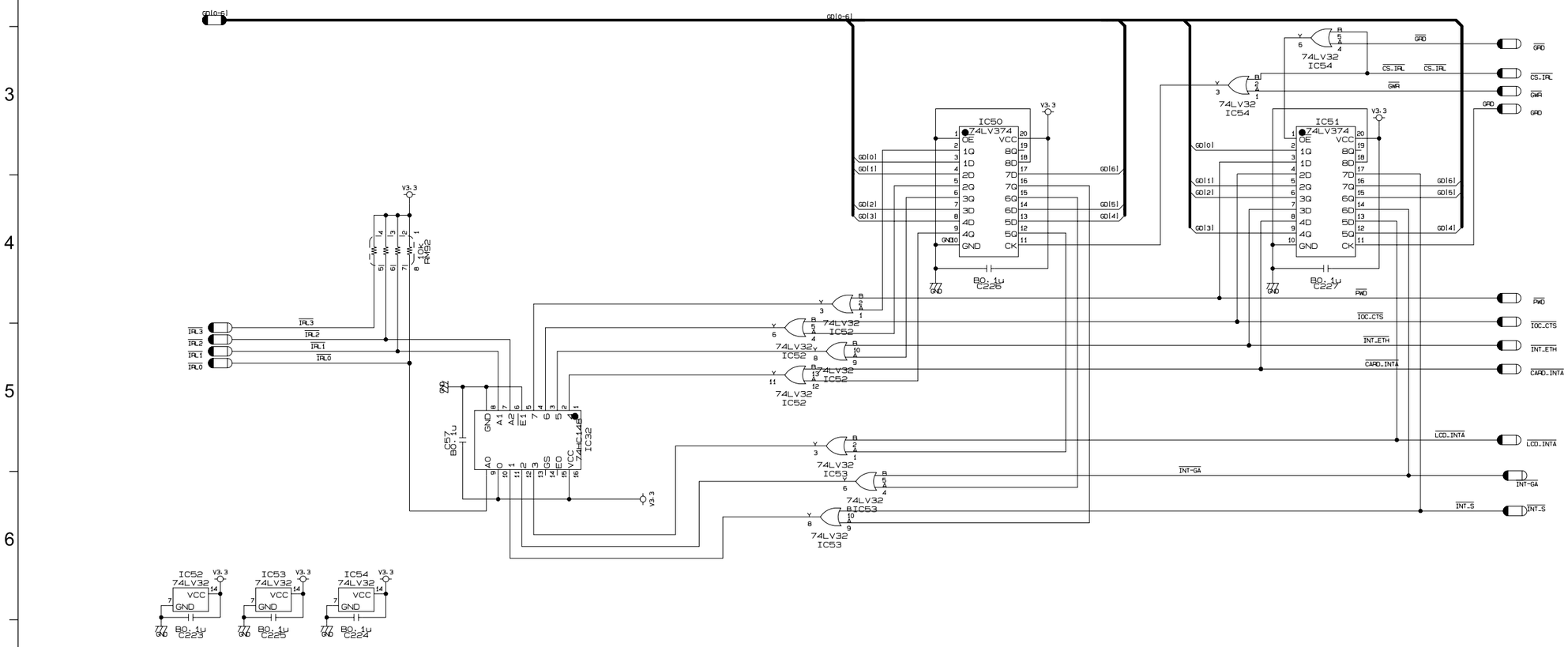

BUZZER
BATT_CHARGE
CN12
53398-0871
IC37
74LV07A
IC48
74LV32
IC49
74AHCT08
IC47
74LV08
IC44
UPD78F4215AGC-8BU
DTA124EE
DTC114TE
DTC114YE
D23 1SS400
D22 1SS400
D24 1SS400
1SS400 x7
INIT SW
SW1
SKHHLSA010
CN16
B3B-ZR-SM4-TF(LF)
TO E820-LED
RB521S-30
SOFTWARE KEY(iButton)
CN9
DS9094F
TO TOUCH_PANEL
CN4
IMSA-9617S-15Y909
CASIO COMPUTER CO.,LTD.
Model
QT-6100
(EX-819)
Board No.
E819-1
Name
MAIN BOARD (9/11)
Drawing No.



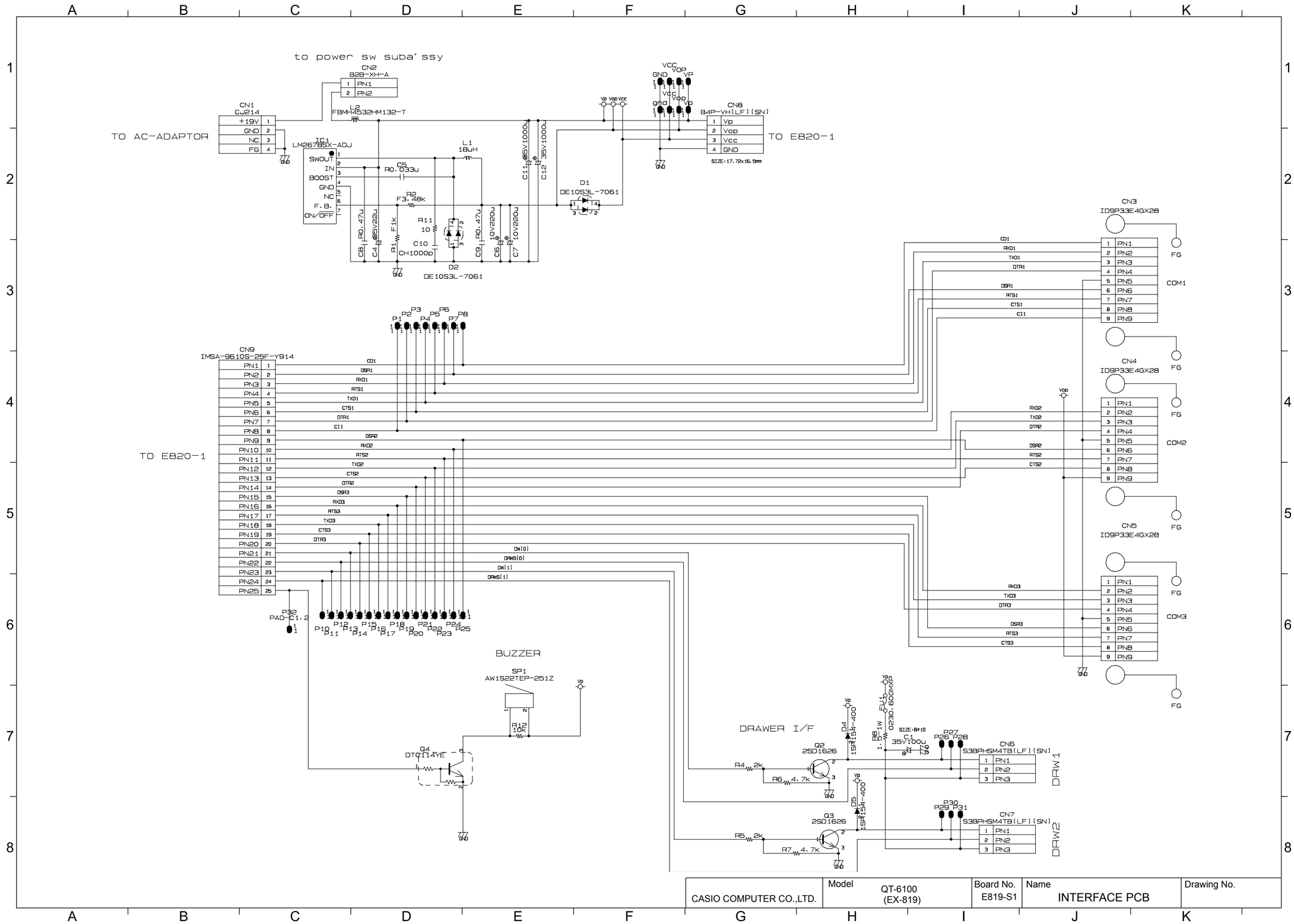


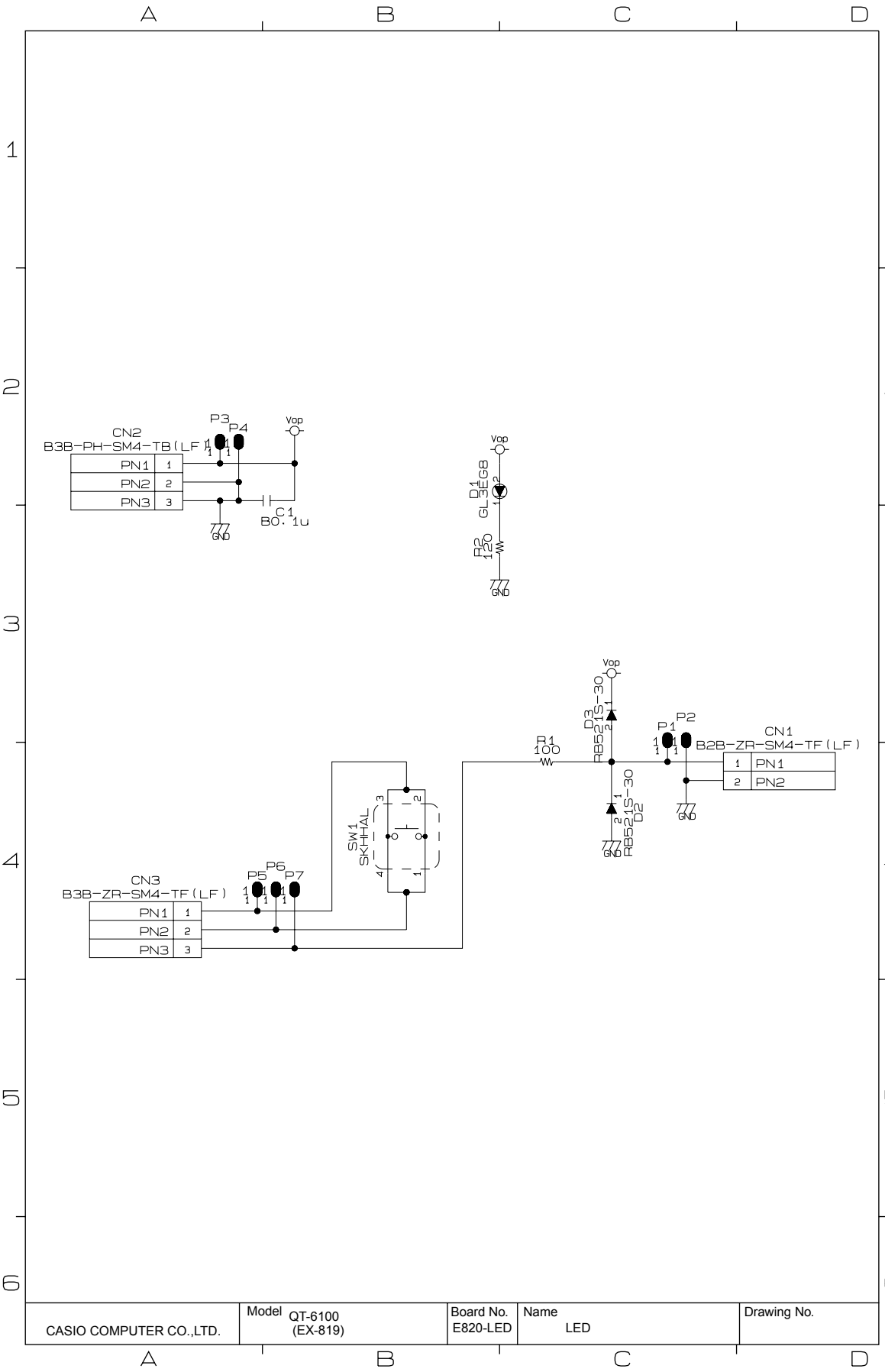


CASIO COMPUTER CO.,LTD.	Model QT-6100 (EX-819)	Board No. E819-1	Name MAIN BOARD (10/11)	Drawing No.

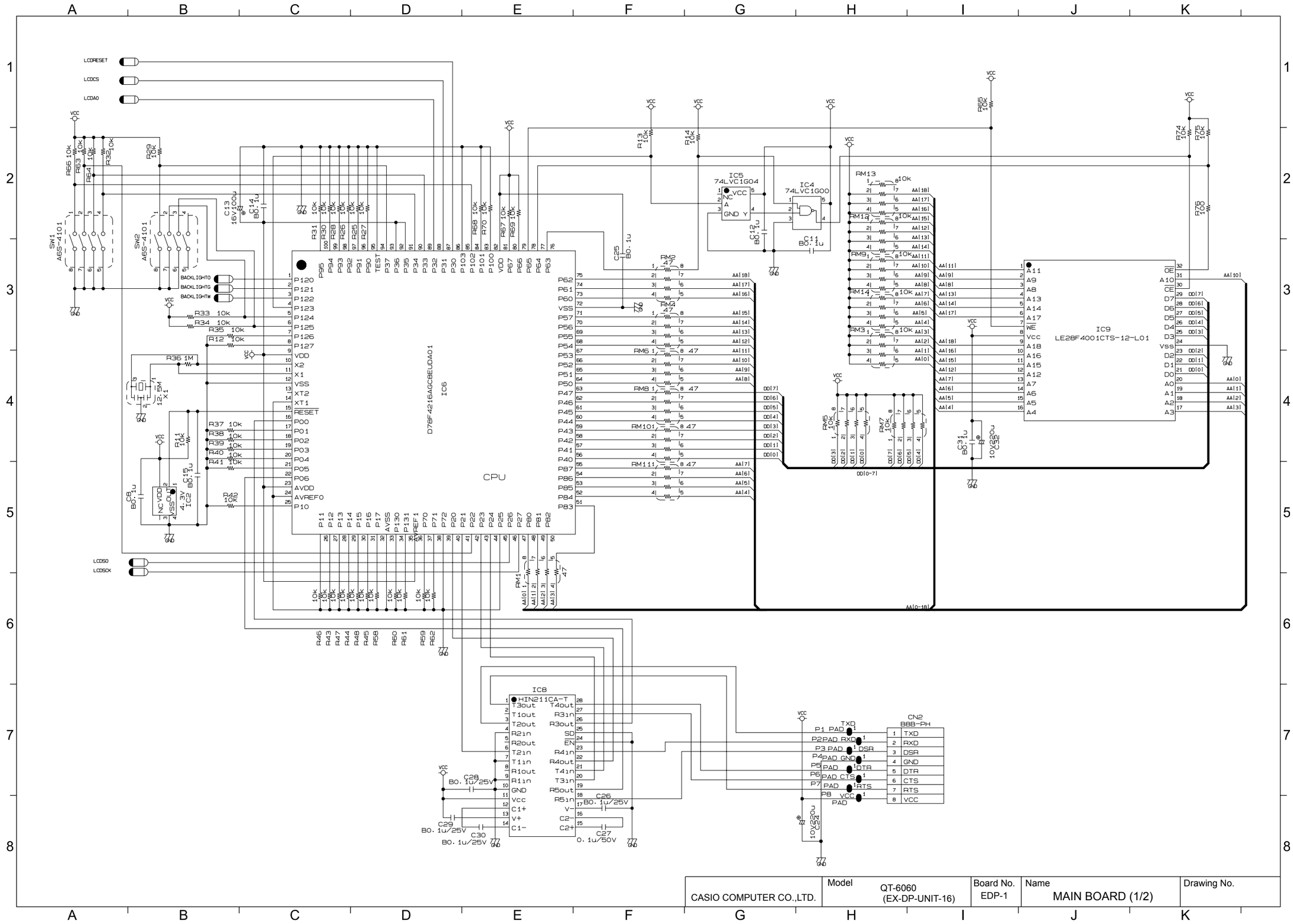


CASIO COMPUTER CO.,LTD.	Model QT-6100 (EX-819)	Board No. E819-1	Name MAIN BOARD (11/11)	Drawing No.

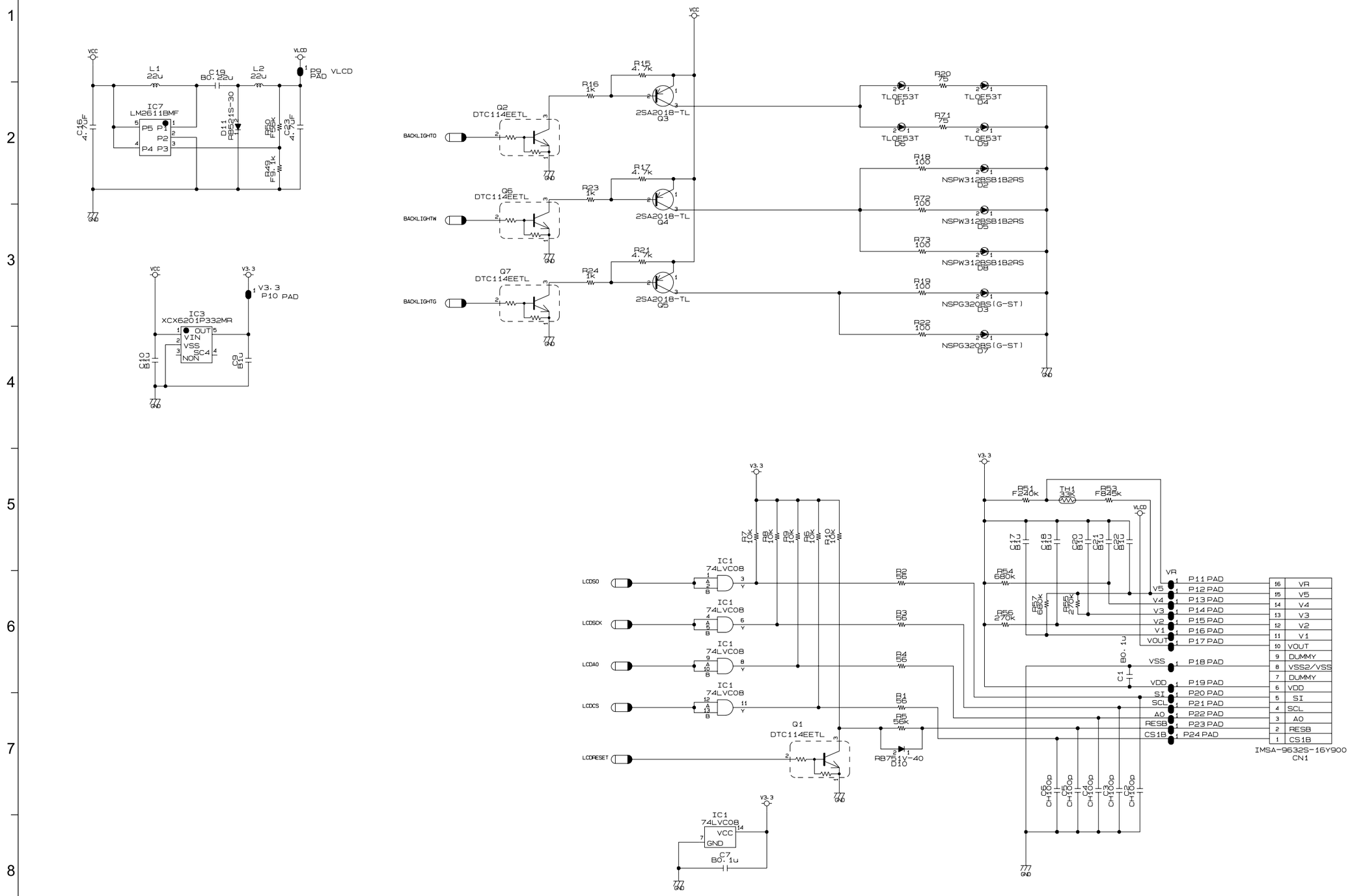

to power sw suba'ssy
CN2
B2B-XH-A
PN1
PN2
CN1
CJ214
+19V
GND
NC
FG
TO AC-ADAPTOR
L2
FBMH4532HM132-T
IC1
LM2678SX-ADJ
SWOUT
IN
BOOST
GND
NC
F.B.
ON/OFF
C5
R0.033u
L1
18uH
R2
F3.48k
R11
10
C10
CH1000p
D2
DE10S3L-7061
C11 35V1000u
C12 35V1000u
D1
DE10S3L-7061
VCC
VOP
VP
CN8
B4P-VH(LF)(SN)
Vp
Vop
Vcc
GND
SIZE:17.72x16.5mm
TO E820-1
CN3
ID9P33E4GX28
CN4
ID9P33E4GX28
CN5
ID9P33E4GX28
COM1
COM2
COM3
FG
CN9
IMSA-9610S-25F-Y914
TO E820-1
CD1
DSR1
RXD1
RTS1
TXD1
CTS1
DTR1
CI1
DSR2
RXD2
RTS2
TXD2
CTS2
DTR2
DSR3
RXD3
RTS3
TXD3
CTS3
DTR3
DW[0]
DRWS[0]
DW[1]
DRWS[1]
BUZZER
SP1
AW1S22TEP-251Z
R10
10K
Q4
DTC114YE
DRAWER I/F
Q2
2SD1626
Q3
2SD1626
R4 2k
R5 2k
R6 4.7k
R7 4.7k
D4
D5
FU1
0230.600MXP
CN6
S3B-PHSM4TB(LF)(SN)
CN7
S3B-PHSM4TB(LF)(SN)
DRW1
DRW2
CASIO COMPUTER CO.,LTD.
Model
QT-6100
(EX-819)
Board No.
E819-S1
Name
INTERFACE PCB
Drawing No.



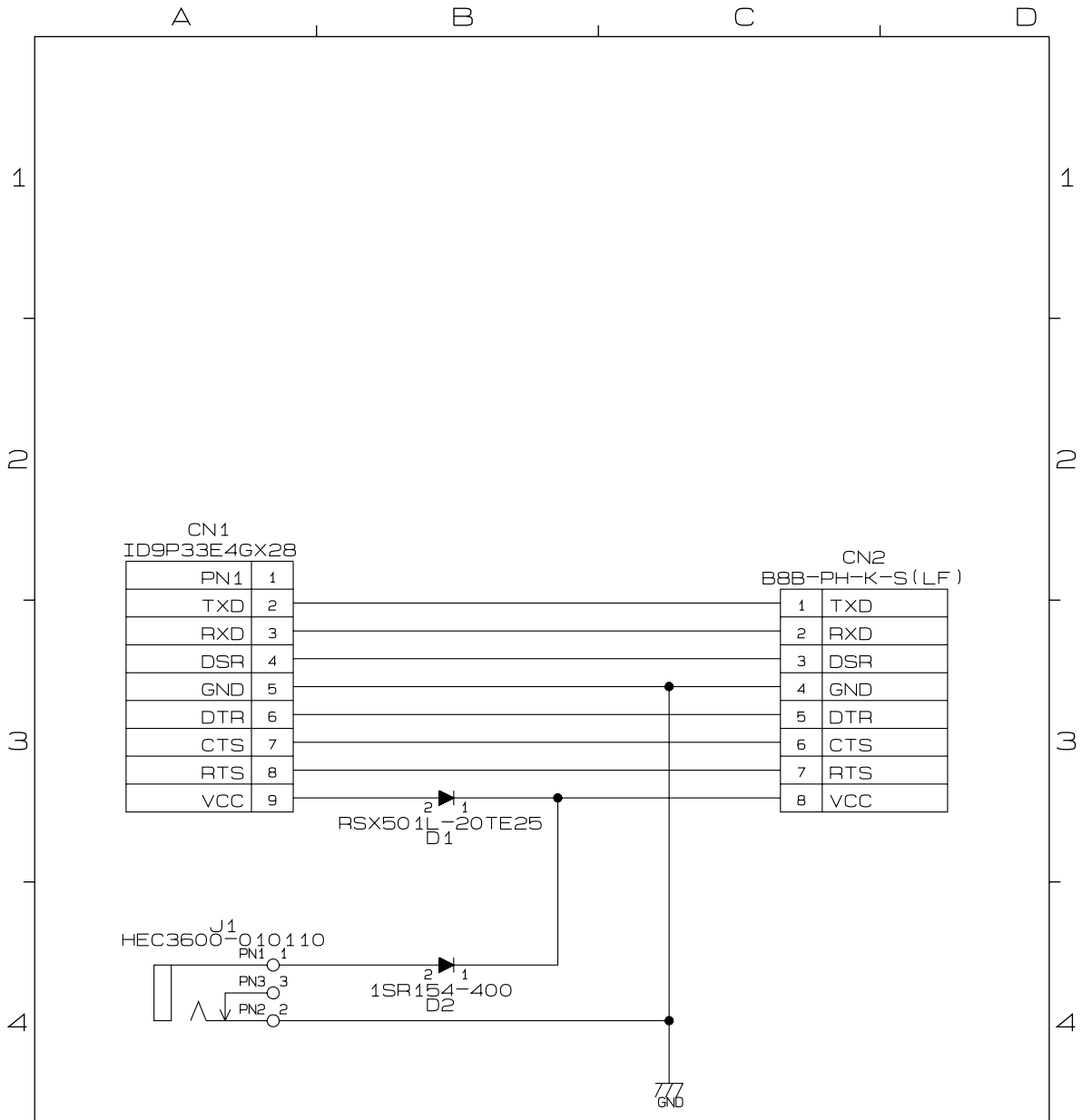
CASIO COMPUTER CO.,LTD.	Model QT-6100 (EX-819)	Board No. E820-LED	Name LED	Drawing No.



CASIO COMPUTER CO.,LTD.	Model: QT-6060 (EX-DP-UNIT-16)	Board No.: EDP-1	Name: MAIN BOARD (1/2)	Drawing No.



CASIO COMPUTER CO.,LTD.	Model QT-6060 (EX-DP-UNIT-16)	Board No. EDP-1	Name MAIN BOARD (2/2)	Drawing No.



CASIO COMPUTER CO.,LTD.	Model QT-6100 (EX-DP-UNIT-16)	Board No. EDP-CNB1	Name SUB BOARD	Drawing No.

13. PARTS LIST

MODEL : QT-6100

(EX-819)

CONTENTS

QT-6100

EXPLODED VIEW 111
1. MAIN PCB BLOCK..... 112
2. LCD BLOCK..... 115
3. FRONT CASE BLOCK..... 115
4. REAR CASE BLOCK 116
5. POWER SUPPLY PCB BLOCK 116
6. CONNECTOR PCB BLOCK 117
7. LED PCB BLOCK..... 117
8. OTHER..□ 117

QT-6060D

EXPLODED VIEW (QT-6060D) 118
9. DISPLAY PCB BLOCK..... 119
10. DISPLAY BLOCK 120
11. STAND BLOCK 120

DRAWER

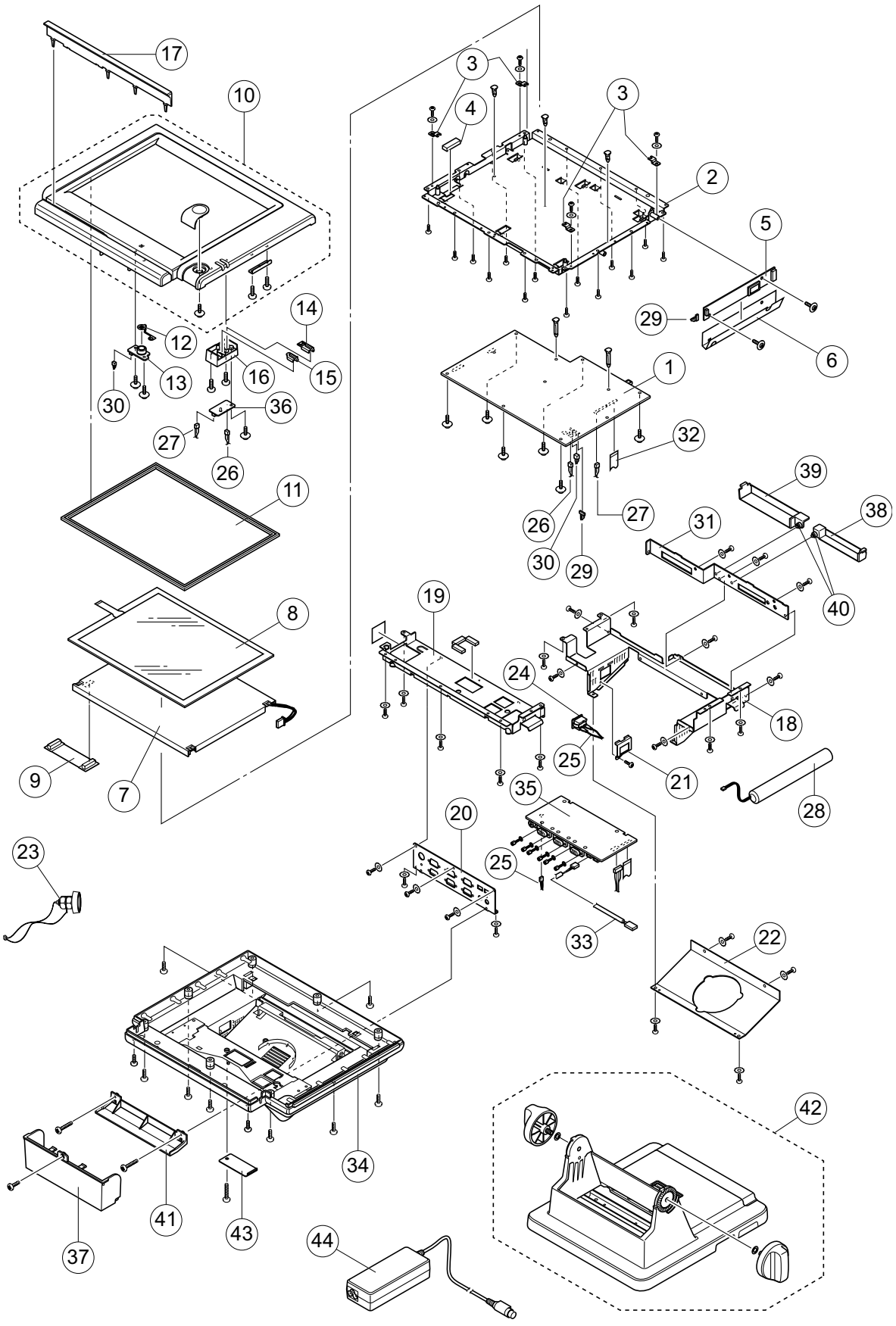
12. DRAWER (DL-2425) 121
13. DRAWER (DL-2525) 123
14. DRAWER (DL-2785) 125
15. DRAWER (DL-2786) 127
16. DRAWER (DL-2920) 129
17. DRAWER (DL-2921) 131
18. DRAWER (DL-3616) 133
19. DRAWER (DL-3617) 135

NOTES :

1. Price and specifications are subject to change without prior notice.
2. As for spare parts order and supply, refer to the “GUIDEBOOK for Spare Parts Supply”, published separately.
3. The numbers in item column corespond to the same numbers in drawing.
4. CASIO does not supply the spare parts without parts code.
5. Remarks

   Q'ty : Quantity used per unit
   RANK: A = Essential
   B = Stock recommended
   C = Less recommended
   X = No stock recommended

EXPLODED VIEW (QT-6100)



1 Standard Model USA

2 Standard Model Other

3 Dallas key Model

N	Item	Code No.	Parts Name	Specification	Q'ty			Price Code	Rank
					1	2	3		
	1. MAIN PCB BLOCK								
N	**1**	10315646	PCB ASSY/E819-1	RJE502692*001V01	1	1	1	ET	A
	IC45		LSI	SM712GX04LF02-BA	1	1	1		X
	IC40		LSI	IDT2305A-1DCG	1	1	1		X
	IC28		LSI	LAN91C113-NU	1	1	1		X
	IC26	10164750	LSI	HD6417751RF240	1	1	1	CT	B
	IC14	10205905	LSI	UPD65945GJP16-JEUA	1	1	1	BU	B
	IC44		LSI	D784215AGC2728EUA	1	1	1		X
	IC12		LSI	HY5V52ALFP-H-C	1	1	1		X
	IC1		LSI	29PL127J60TFI13004	1	1	1		X
	IC2	10074003	IC	XC6365A363MR	1	1	1	AG	C
	IC42	10166798	IC	XC62EP1502MR	1	1	1	AK	C
	IC46	10165673	IC	XC6219B332MR	1	1	1	AB	C
	IC34	10166799	IC	XC6206P182MR	1	1	1	AG	C
	IC3,IC9, IC23,IC27	10166792	IC	HIN211CAZ-T	4	4	4	BH	C
	IC24	10166793	IC	HIN202CBNZ-T	1	1	1	AV	C
	IC41		IC	SG82JFSCB14.318MLF	1	1	1		X
	IC43		IC	SG-8002JFSCB33M-LF	1	1	1		X
	IC19		IC	RTC-7301DG-LF	1	1	1		X
	IC6,IC7	10105408	IC/CMOS	SN74LVC245APWR	2	2	2	AA	C
	IC4,IC5	10105407	IC/CMOS	SN74LVC244APWR	2	2	2	AA	C
	IC11	10166801	IC/CMOS	SN74LVC138APWR	1	1	1	AE	C
	IC25	10004414	IC/CMOS	SN74LV74APWR	1	1	1	AC	C
	IC16,IC21, IC50,IC51	10005662	IC/CMOS	SN74LV374APWR	4	4	4	AF	C
	IC48,IC52-54	10004413	IC/CMOS	SN74LV32APWR	4	4	4	AB	C
	IC22,IC38,IC39	10005721	IC/CMOS	SN74LV244APWR	3	3	3	AF	C
	IC30	10007179	IC/CMOS	SN74LV10APWR	1	1	1	AC	C
	IC47,IC57	10005659	IC/CMOS	SN74LV08APWR	2	2	2	AB	C
	IC37	10105417	IC/CMOS	SN74LV07APWR	1	1	1	AA	C
	IC10	10120129	IC/CMOS	SN74LV04APWR	1	1	1	AC	C
	IC29	10003984	IC/CMOS	SN74LV00APWR	1	1	1	AB	C
	IC32	10166802	IC/CMOS	SN74HC148NSR	1	1	1	BD	C
	IC8	10166803	IC/CMOS	SN74ALVCH16245DGGR	1	1	1	BF	C
	IC13,IC17	10166804	IC/CMOS	SN74ALVCH16244DGGR	2	2	2	BF	C
	IC20	10166805	IC/CMOS	SN74ALVC08PWR	1	1	1	AH	C
	IC49	10105416	IC/CMOS	SN74AHCT08PWR	1	1	1	AC	C
	IC58,IC59	10147316	IC/CMOS	SN74LVC1G97DCK3	2	2	2	AB	C
	IC56	10183834	IC/CMOS	SN74LVC1G08DCK3	1	1	1	AD	C
	IC55		IC/RESET	S-80828CLNB-B6NT2G	1	1	1		X
	IC33		IC/RESET	M51957BFP-CF1J	1	1	1		X
	IC35	10166794	EEPROM	BR93L46RF-WE2	1	1	1	AM	C
	R65,70,77-83, 85-87,92,93,97, 99,100,105,109, 110,115,121, 127,294,295		RESISTOR/CHIP	WR06X000PTL	25	25	25		X
	R118,129,130, 133,340-349		RESISTOR/CHIP	WR06X101JTL	14	14	14		X
	R1,11,40,120,128, 240,250,275,314		RESISTOR/CHIP	WR06X102JTL	9	9	9		X

1 **Standard Model USA**

2 **Standard Model Other**

3 **Dallas key Model**

N	Item	Code No.	Parts Name	Specification	Q'ty			Price Code	Rank
					1	2	3		
	R7,12-18,23-27, 29,30,34,35,37,41, 43-48,54,62,64, 96,103,108,113, 135-174,183-192, 199,200,203-212, 224-234,237-239, 241,244,245,251, 253,254,257-260, 263,269-271,296, 298-308,311-313, 315-318,331,335		RESISTOR/CHIP	WR06X103JTL	143	143	143		X
	R252,276,278, 279,319,320		RESISTOR/CHIP	WR06X104JTL	6	6	6		X
	R33,333		RESISTOR/CHIP	WR06X105JTL	2	2	2		X
	R277		RESISTOR/CHIP	WR06X113JTL	1	1	1		X
	R95,101,106, 112,274		RESISTOR/CHIP	WR06X123JTL	5	5	5		X
	R69		RESISTOR/CHIP	WR06X201JTL	1	1	1		X
	R63,90		RESISTOR/CHIP	WR06X203JTL	2	2	2		X
	R39		RESISTOR/CHIP	WR06X222JTL	1	1	1		X
	R66,68,321,322		RESISTOR/CHIP	WR06X24R9FTL	4	4	4		X
	R56-61,67		RESISTOR/CHIP	WR06X331JTL	7	7	7		X
	R213,215,217, 220,222,223, 246,334,339		RESISTOR/CHIP	WR06X470JTL	9	9	9		X
	R38,91,114,123, 247,249,264,280, 281,282,287-289		RESISTOR/CHIP	WR06X472JTL	13	13	13		X
	R283,284		RESISTOR/CHIP	WR06X49R9FTL	2	2	2		X
	R9,10		RESISTOR/CHIP	WR06X510JTL	2	2	2		X
	R20-22,36,50,53, 72-76,84,89,94,98, 102,104,107,117, 122,131,132,134,175, 255,256,265-268, 272,273		RESISTOR/CHIP	WR06X563JTL	36	36	36		X
	R124		RESISTOR/CHIP	WR06X6203FTL	1	1	1		X
	R214,216,218,219, 235,236,337,338		RESISTOR/CHIP	WR06X750JTL	8	8	8		X
	R285,286,290,291		RESISTOR/CHIP	WR06X75R0FTL	4	4	4		X
	R336		RESISTOR/CHIP	WR06X821JTL	1	1	1		X
	R119		RESISTOR/CHIP	WR06X822JTL	1	1	1		X
	R125		RESISTOR/CHIP	WR20X5R6JTL	1	1	1		X
	RM6,7,9,12,38,46, 51,66,67,75,78, 79,82,85,88		REGISTOR ARRAY	WA06X000PTL	15	15	15		X
	RM1,3-5,8,10,11, 15,16,23,28,50, 52-59,61,80,83, 86,90,92		REGISTOR ARRAY	WA06X103JTL	26	26	26		X

1 Standard Model USA

2 Standard Model Other

3 Dallas key Model

N	Item	Code No.	Parts Name	Specification	Q'ty			Price Code	Rank
					1	2	3		
	RM22,24-27,29-36, 39,40,42-45,49, 60,62-65,71-74, 81,84,87,89		REGISTOR ARRAY	WA06X330JTL	40	40	40		X
	RM68-70,76,91,93		REGISTOR ARRAY	WA06X510JTL	6	6	6		X
	RM2,95,97-106		REGISTOR ARRAY	WA06X563JTL	12	12	12		X
	C199		CAPACITOR/CHIP CERA	0603B103K500CT	1	1	1		X
	C4,6-12,15-18, 23-25,30-35,37, 38,42-46,49,51, 53,57,59,60,68, 69,72-74,80,107, 108,114,116-118, 120-128,131-133, 135,138-141, 146-157,161-163, 166,168-170, 176,180-183, 185,186,188-196, 198,200-208, 211-216,218-227, 230-234,237-239		CAPACITOR/CHIP CERA	0603B104K250CT	132	132	132		X
	C64,67,184, 228,229		CAPACITOR/CHIP CERA	0603B105K100CT	5	5	5		X
	C111		CAPACITOR/CHIP CERA	0603B472K500CT	1	1	1		X
	C179		CAPACITOR/CHIP CERA	0603B473K250CT	1	1	1		X
	C77,78,81,83-87, 90-94,96-98,100, 101,103,105,106, 110,112,165,177, 178,209,210		CAPACITOR/CHIP CERA	0603N101J500LT	28	28	28		X
	C145		CAPACITOR/CHIP CERA	0603N120J500LT	1	1	1		X
	C144		CAPACITOR/CHIP CERA	0603N150J500LT	1	1	1		X
	C55.66		CAPACITOR/CHIP CERA	0603N180J500LT	2	2	2		X
	C109		CAPACITOR/CHIP CERA	0603N681J500LT	1	1	1		X
	C3,13,29,39,50		CAPACITOR/CHIP CERA	0805B104K500CT	5	5	5		X
	C82		CAPACITOR/CHIP CERA	GR442QR73D102KW01L	1	1	1		X
	C95,99,102,104		CAPACITOR/CHIP CERA	GRM1882C1H182JA01D	4	4	4		X
	C71		CAPACITOR/CHIP TANTALUM	SY4-0J106M-RA	1	1	1		X
	C5,21,36,41,115		CAPACITOR/CHIP TANTALUM	SY4-1A107M-RD0	5	5	5		X
	C76		CAPACITOR/CHIP TANTALUM	SY5-1A106M-RA	1	1	1		X
	C26		CAPACITOR/CHIP AL	RV2-16V100MB55U-R	1	1	1		X
	C1,14,20,22,40,89		CAPACITOR/CHIP AL	RV2-16V101MSU-R	6	6	6		X
	C28,75		CAPACITOR/CHIP AL	RV2-35V100MU-R	2	2	2		X
	C2,113		CAPACITOR/CHIP AL	RV3-10V221MF80U-R	2	2	2		X
	TH1		THERMISTOR/CHIP	NCP18WM154J03RB	1	1	1		X
	T1	10166819	TRANSFORMER/PULSE	TTC-8139	1	1	1	AZ	X
	D1,25		DIODE/CHIP	RSX501L-20TE25	2	2	2		X
	D2		DIODE/CHIP	RB550VA-30TR	1	1	1		X
	D4,32	23903042	DIODE/CHIP	RB521S-30TE61	2	2	2	AA	X
	D3		DIODE/CHIP	DE10S3L-7061	1	1	1		X
	D5-19,22-24,28-31	10009218	DIODE/CHIP	1SS400TE61	22	22	22	AA	X
	Q7,10,14		TRANSISTOR/CHIP DIGITAL	DTA124EETL	3	3	3		X

1 Standard Model USA

2 Standard Model Other

3 Dallas key Model

N	Item	Code No.	Parts Name	Specification	Q'ty			Price Code	Rank
					1	2	3		
	Q9,13		TRANSISTOR/CHIP DIGITAL	DTC114TETL	2	2	2		X
	Q3,6,8,11,15	22592674	TRANSISTOR/CHIP DIGITAL	DTC114YETL	5	5	5	AA	X
	Q4		TRANSISTOR/CHIP	2SA1729S-TD-E	1	1	1		X
	Q5		TRANSISTOR/CHIP	2SA2012-TD-E	1	1	1		X
	Q12		TRANSISTOR/CHIP	2SA2018-TL	1	1	1		X
	Q1		TRANSISTOR/CHIP	2SJ499-TL-E	1	1	1		X
	Q16		TRANSISTOR/CHIP	RTF020P02TL	1	1	1		X
	L1	10166828	INDUCTOR/CHIP POER	CDRH127/LDNP-220MC	1	1	1		C
	X4		OSCILLATOR	MA-406-25M10/50-LF	1	1	1		X
	X2		OSCILLATOR	MA-406-20M10/50-LF	1	1	1		X
	X1	10074503	CERALOCK/CHIP	CSTCE8M00G55-R0	1	1	1	AB	C
	X5	10146565	CERALOCK/CHIP	CSTCE12M5G52-R0	1	1	1	AK	C
	31	10165835	CABLE SUB ASSY/S1	RJE501162-001V01	1	1	1	AJ	C
	CN8		CONNECTOR	SE-623PCB(YH-SP12)	1	1	1		X
	CN4		CONNECTOR	IMSA-9617S-15Y910	1	1	1		X
	CN2	10183841	CONNECTOR	IMSA-9610S-25FY914	1	1	1	AO	C
	CN18		CONNECTOR	B2BPHSM4TB(LF)(SN)	1	1	1		X
	CN5	10216424	CONNECTOR	B3BPHSM4TB(LF)(SN)	1	1	1	AI	C
	CN16		CONNECTOR	B3BZRSM4TF(LF)(SN)	1	1	1		X
	CN13		CONNECTOR	DF9-41P-1V(69)	1	1	1		X
	CA12	10183792	CONNECTOR	53398-0871	1	1	1	AI	C
	CN11	10183822	CONNECTOR	53398-0571	1	1	1	AH	C
	CN1	10074494	CONNECTOR	FCN-560HAC	1	1	1	AP	C
	CN1	10120086	CONNECTOR	FCN-568H050-G/A3	1	1	1	BN	C
	SW2		CONNECTOR	IMSA-9206H-GF	1	1	1		X
	SW2	10181764	CONNECTOR	9202B-1-02Z040-PT1	1	1	1	AB	C
	SW1	10120119	SWITCH/PUSH	SKHHLSA010	1	1	1	AC	C
	VR4	10181766	VOLUME/ROTARY	EVUE20H20B14	1	1	1	AQ	C
			BIND-SCREW	S-BDMA-2X5Z3	2	2	2		X
			6-NUT	N-HXT2-2Z3	2	2	2		X
	2. LCD BLOCK								
N	**2**	10165844	CHASSIS/LCD E820	RJE501107-001V01	1	1	1	CT	C
N	**3**	10165845	HOLDER/LCD E820	RJE501138-001V01	4	4	4	AD	C
N	**4**	10165846	CUSHION/LCD E820	RJE501132-001V01	1	1	1	AB	X
N	**5**	10183836	INVERTER	PS10206	1	1	1	CZ	A
N	**6**	10165848	INSULATOR/INV E820	RJE501129-001V01	1	1	1	AF	X
			SPACER/ROCKING	RSPLS-8	3	3	3		X
			SPACER/ROCKING	RSPLS-18L	2	2	2		X
			SCREW/PAN SEMS	S-PASEMA-3X6ZC	4	4	4		X
			SCREW/PAN SEMS	S-PASLMA-3X6ZC	8	8	8		X
N	**7**	10164747	LCD	NL8060BC31-27	1	1	1	EM	A
N	**8**	10164757	PANEL/TOUCH	N010-0550-T711	1	1	1	DL	A
N	**9**	10179186	FPC ASSY/E820	RJE501236*001V01	1	1	1	CM	C
N		10170323	TAPE/LCD E820	RJE501211-001V01	1	1	1	AW	C
	3. FRONT CASE BLOCK								
N	**10**	10183838	CASE SUB ASSY/FRONT	RJE501231*001V01			1	CL	C
N	**10**	10183840	CASE SUB ASSY/FRONT	RJE501231*002V01	1	1		CJ	C
N	**11**	10165817	SEAL/LCD E820	RJE501104-001V01	1	1	1	BF	C
N	**12**	10165818	PLATE/MIC EARTH E820	RJE501119-001V01	1	1	1	AI	C
N	**13**	10165820	PCB ASSY/E820-MIC	RJE501158*001V01	1	1	1	AS	A
N	**14**	10165821	BUTTON/DP E820	RJE501091-001V01	1	1	1	AF	C
N	**15**	10165822	COVER/DP LAMP E820	RJE501092-001V01	1	1	1	AF	C

1 Standard Model USA

2 Standard Model Other

3 Dallas key Model

N	Item	Code No.	Parts Name	Specification	Q'ty			Price Code	Rank
					1	2	3		
N	**16**	10165823	COVER/DP SW E820	RJE501090-001V01	1	1	1	AK	C
N	**17**	10165824	SEAL/MCR E820	RJE501106-001V01	1	1	1	BO	C
N	**18**	10165825	CHASSIS/LR E820	RJE501108-001V01	1	1	1	BC	C
N	**19**	10165826	CHASSIS/B E-820	RJE501109-001V01	1	1	1	BL	C
N	**20**	10165827	CHASSIS/CON E820	RJE501111-001V01	1	1	1	AM	C
N	**21**	10165828	CHASSIS/SW E820	RJE501114-001V01	1	1	1	AF	C
N	**22**	10165829	CHASSIS/T E820	RJE501115-001V01	1	1	1	AT	C
			SCREW/WASHER PT	S-WBPT-3X6ZC	6	6	5		X
N	**23**	10165833	IBUTTON ASSY	RJE501183*001V01			1	DS	C
N	**24**	10166867	SWITCH/POWER	SDDJE10700	1	1	1	AV	C
N	**25**	10165835	CABLE SUB ASSY/S1	RJE501162*001V01	1	1	1	AJ	C
N	**26**	10165836	CABLE SUB ASSY/CNB	RJE501165*001V01	1	1	1	AD	C
N	**27**	10165837	CABLE SUB ASSY/MIC	RJE501166*001V01	1	1	1	AD	C
N	**28**	10172645	BATTERY/NIH	HHR-21HL3G1C		1	1	CS	A
N	**28**	10172644	BATTERY/NIH	HHR-21HL3G1B	1			CS	A
			TIE/CABLE	BK-1	2	2	2		X
N	**29**	10165839	CABLE SUB ASSY/CNB	RJE501165*002V01	1	1	1	AI	C
N	**30**	10165841	CABLE SUB ASSY/MIC	RJE501166*002V01	1	1	1	AD	C
N	**31**	10165842	CHASSIS/F E820	RJE501110-001V01	1	1	1	AU	C
N	**32**	10170488	JOINER/FFC A-E820	RJE501228-001V01	1	1	1	AM	C
	33	10085156	CABLE SUB ASSY/DRAWER	E440737*1	1	1	1	AK	C
			FERRITE CORE	TR-20-10-10			1		X
	4. REAR CASE BLOCK								
N	**34**	10170482	CASE SUB ASSY/REAR	RJE501227*001	1	1	1	DB	C
	5. POWER SUPPLY PCB BLOCK								
N	**35**	10315647	PCB ASSY/E819-S1	RJE502693*001V01	1	1	1	DK	A
	IC1		IC	LM2678SX-ADJ/MOPB	1	1	1		X
	R1		RESISTOR/CHIP	WR06X1001FTL	1	1	1		X
	R11		RESISTOR/CHIP	WR06X100JTL	1	1	1		X
	R12		RESISTOR/CHIP	WR06X103JTL	1	1	1		X
	R4,5		RESISTOR/CHIP	WR06X202JTL	2	2	2		X
	R2		RESISTOR/CHIP	WR06X3481FTL	1	1	1		X
	R6,7		RESISTOR/CHIP	WR06X472JTL	2	2	2		X
	C8,9		CAPACITOR/CHIP CERA	1206B474K500CT	2	2	2		X
	C5		CAPACITOR/CHIP CERA	0603B333K500CT	1	1	1		X
	C10		CAPACITOR/CHIP CERA	0603N102J500LT	1	1	1		X
	C6,7		CAPACITOR/ALE	10SEP270M	2	2	2		X
	C4		OS-CON/CHIP	35SVPD22M	1	1	1		X
	C11,12		CAPACITOR/AL	RJF-35V102MI6#	2	2	2		X
	C1		CAPACITOR/CHIP AL	RV-35V101MG10U-R	1	1	1		X
	Q4		TRANSISTOR/CHIP DIGITAL	DTC114YETL	1	1	1		X
	Q2,3		TRANSISTOR/CHIP	2SD1626-TD-E	2	2	2		X
	L1		INDUCTOR/CHIP	CDRH127/LDNP-180MC	1	1	1		X
	L2		BEADS/CHIP	FBMH4532HM132-T	1	1	1		X
	FU1	30007777	FUSE	0230.600MXP	1	1	1	AE	A
	D1,2		DIODE/CHIP	DE10S3L-7061	2	2	2		X

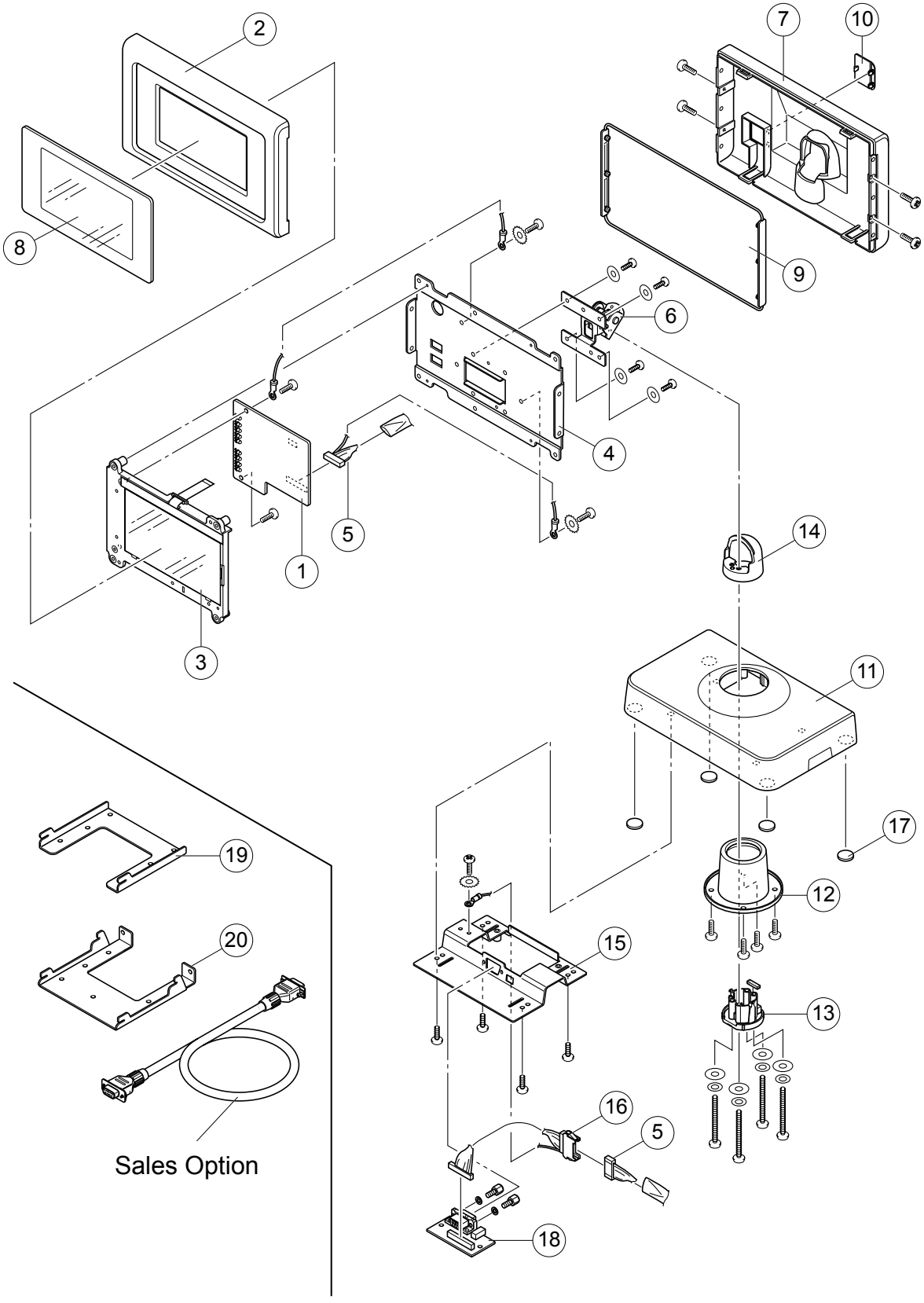
1 Standard Model USA

2 Standard Model Other

3 Dallas key Model

N	Item	Code No.	Parts Name	Specification	Q'ty			Price Code	Rank
					1	2	3		
	D4,5		DIODE/CHIP	1SR154-400TE25	2	2	2		X
	CN9	10183841	CONNECTOR	IMSA-9610S-25FY914	1	1	1	AO	C
	CN8	10204413	CONNECTOR	B4P-VH(LF)(SN)	1	1	1	AB	C
	CN6,7		CONNECTOR	S3BPHSM4TB(LF)(SN)	2	2	2		X
	CN3,4,5	30007917	CONNECTOR	ID9P33E4GX28	3	3	3	AK	C
	CN2		CONNECTOR	B2B-XH-A(LF)(SN)	1	1	1		X
	CN1		CONNECTOR	CJ214	1	1	1		X
N	SP1	10241792	BUZZER	AW1S22TEP-251Z	1	1	1	AG	B
	R8		RESISTOR/CHIP	ERX1SJ1R5P	1	1	1		X
	6. LED PCB BLOCK								
N	**36**	10165832	PCB ASSY/E820-LED	RJE501160*001V01	1	1	1	AL	A
	R1		RESISTOR/CHIP	CR1/16-470JV	1	1	1		X
	R2		RESISTOR/CHIP	CR1/16-121JV	1	1	1		X
	C1		CAPACITOR/CHIP CERA	GRM188B11E104KA01D	1	1	1		X
	D2,3		DIODE/CHIP	1SS400TE61	2	2	2		X
N	CN2	10181761	CONNECTOR	B3B-PH-SM4-TB(LF)	1	1	1	AE	C
N	CN1	10181732	CONNECTOR	B2B-ZR-SM4-TF(LF)	1	1	1	AD	C
N	CN3	10181762	CONNECTOR	B3B-ZR-SM4-TF(LF)	1	1	1	AD	C
	SW1	34121029	SWITCH	SKHHAL	1	1	1	AA	C
	D1	24088399	LED	GL3EG8	1	1	1	AA	C
	7. OTHER								
N	**37**	10165795	COVER/CON E820	RJE501083-001V01	1	1	1	BU	C
N	**38**	10165796	COVER/CF E820	RJE501087-001V01	1	1	1	AO	C
N	**39**	10165797	COVER/LAN E820	RJE501088-001V01	1	1	1	AL	C
			SCREW/BIND	S-BDMA-3X8BC	9	9	9		X
			SCREW/BIND PTITE	S-BDPT-3X8BC	2	2	2		X
			SCREW/BIND	S-BDMA-3X12BC	3	3	3		X
N	**40**	10170322	SCREW/BIND E820	RJE501232-001V01	2	2	2	AB	X
N	**41**	10170323	COVER/U E820	RJE501212-001V01	1	1	1	AW	C
N	**42**		STAND SUB ASSY	RJE502722D201	1	1	1		
N	**43**	10165799	COVER/IBUTTON	RJE501117-001V01	1	1	1	AF	C
		10029671	SCREW/DL POSITION E475	E441149-1	2	2	2	AF	C
N	**44**	10169764	ADAPTOR/AC	ADP820AA	1	1	1	DK	A
N		10181976	CORD/POWER	US820	1			BB	C
		30008016	FERRITE CORE	TFC-23-11-14	1	1	1	AR	C

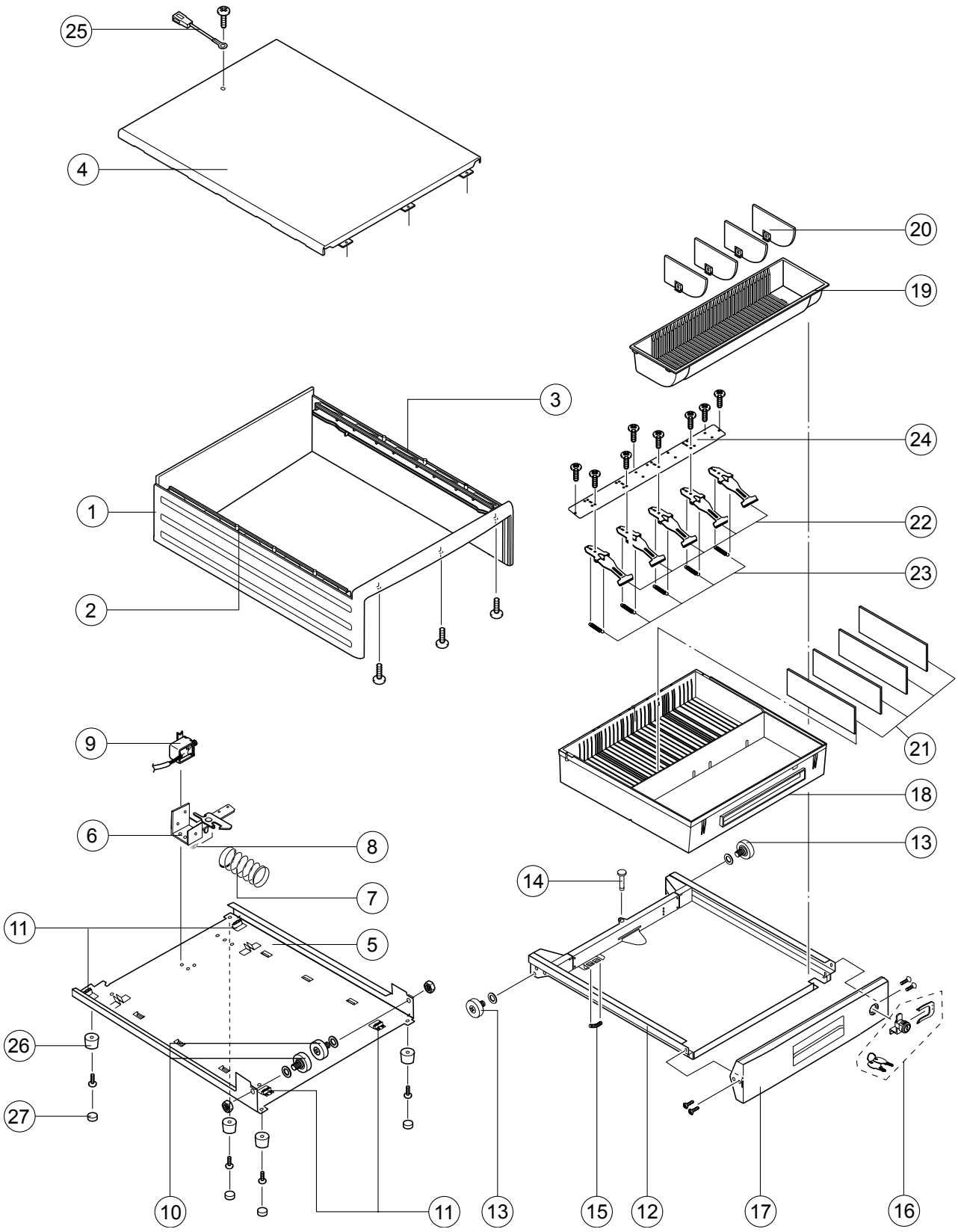
EXPLODED VIEW (QT-6060D)



N	Item	Code No.	Parts Name	Specification	Q'ty	Price Code	Rank
	1. DISPLAY PCB BLOCK						
N	**1**	1016 6273	PCB ASSY/EDP-1	RJE501147*001V01	1		A
N	IC6		LSI	D784216AGC8EUDB01	1		A
N	IC9	1016 6277	LSI	LE28F4001CTS-12L01	1		A
	IC8	1016 6792	IC	HIN211CAZ-T	1		A
	IC3	1009 7860	IC/MOS	XC6201P332MR	1	AB	A
	IC7	1015 6876	IC	LM2611BMF	1		A
	IC1	1012 0131	IC/CMOS	SN74LVC08APWR	1	AC	A
N	IC4	1013 2445	IC/CMOS	SN74LVC1G00DCKR	1		A
N	IC5	1010 5293	IC/CMOS	SN74LVC1G04DCKR	1		A
N	IC2	1016 6278	IC/RESET	S-80843CNNB-B84-T2	1		A
	Q3-5	1012 0138	TRASISTOR/CHIP	2SA2018-TL	3	AC	B
	Q1,2,6,7	2590 2697	TRANSISTOR/CHIP DIGITAL	DTC114EETL	4	AA	B
	X1	1014 6565	CERALOCK/CHIP	CSTCE12M5G52-R0	1	AK	B
	L1,2	1015 6878	INDUCTOR/POWER	LQH32CN220K23L	2		B
	D11		DIODE/CHIP	RB521S-30TE61	1		X
	D10		DIODE/CHIP	RB751V-40TE17	1		X
	R18,19,22,72,73,76		RESISTOR/CHIP	MCR03EZPJ101	6		X
	R16,23,24		RESISTOR/CHIP	MCR03EZPJ102	3		X
	R6-14,25-35,37-48, R58-70,74,75		RESISTOR/CHIP	MCR03EZPJ103	47		X
	R55,56		RESISTOR/CHIP	MCR03EZPJ274	2		X
	R15,17,21		RESISTOR/CHIP	MCR03EZPJ472	3		X
	R1-4		RESISTOR/CHIP	MCR03EZPJ560	4		X
	R5		RESISTOR/CHIP	MCR03EZPJ563	1		X
	R54,57		RESISTOR/CHIP	MCR03EZPJ684	2		X
	R20,71		RESISTOR/CHIP	MCR03EZPJ750	2		X
	R51		RESISTOR/CHIP	MCR03EZPF2403	1		X
	R50		RESISTOR/CHIP	MCR03EZPF5602	1		X
	R53		RESISTOR/CHIP	MCR03EZPF8453	1		X
	R49		RESISTOR/CHIP	MCR03EZPF9101	1		X
	RM3,5,7,9,12-14		RESISTOR/CHIP ARRAY	MNR14E0ABJ103	7		X
	RM1,2,4,6,8,10,11		RESISTOR/CHIP ARRAY	MNR14E0ABJ470	7		X
N	TH1	1013 2898	THERMISTER	NCP18WB333J03RB	1		C
	C2-6		CAPACITOR/CHIP CERA	GRM1882C1H101JA01D	5		X
	C1,7,8,11,12,14,15, C25,26,28-31		CAPACITOR/CHIP CERA	GRM188B11E104KA01D	13		X
	C9,10,17,18,20-22		CAPACITOR/CHIP CERA	GRM21BB11C105KA01L	7		X
	C19		CAPACITOR/CHIP CERA	GRM21BB11H224KA01L	1		X
	C16,23		CAPACITOR/CHIP CERA	GRM31CR61C475KA45L	2		X
	C13		CAPACITOR/CHIP AL	RV2-16V101MSU-R	1		X
	C24,32		CAPACITOR/CHIP AL	RV-10V221MG68-R	2		X
	CN1	1012 0096	CONNECTOR	IMSA-9632S-16Y900	1	AK	C
N	CN2		CONNECTOR	B8B-PH-SM4-TB(LF)	1		C
N	SW1,2		SWITCH/DIP	A6S-4104	2		C
	C27		CAPACITOR/CHIP CERA	GRM21BB1H104KA01L	1		X
	D3,7	1012 0089	LED	NSPG320BS(G-ST)	2	BI	C
	D1,4,6,9	1012 0090	LED	TLOE53T	4	AD	C
	D2,5,8	1013 3590	LED	NSPW312BSB1B2RS	3	BI	C

N	Item	Code No.	Parts Name	Specification	Q'ty	Price Code	Rank
	2. DISPLAY BLOCK						
N	**2**	1016 6707	CASE/FRONT EDP	RJE501139-001V01	1		C
		1012 6583	CUSION/LCD V E466	RJE500659-001V01	2	AB	C
		1012 6584	CUSION/LCD H E466	RJE500659-002V01	2	AB	C
	3	1012 0084	LCD UNIT	MDG12DC38-FC	1	CQ	A
N	**4**	1016 8763	CHASSIS/DP EDP	RJE501122-001V01	1		C
N	**5**	1016 8764	CABLE SUB ASSY/CNB1	RJE501195*001V01	1		C
N	**6**		HINGE ASSY	RJE501237*001V01	1		C
N	**7**	1016 6708	CASE/REAR EDP	RJE501140-001V01	1		C
N	**8**	1016 8767	BOARD/DP EDP	RJE501190-001V01	1		C
	9	1016 8768	RUBBER/PACKING EDP	RJE501191-001V01	1		C
			SCREW	S-PASLMA-3X5ZC	4		X
			SCREW	S-BDB0-3X8NI	8		X
			SCREW	S-BDMA-2.6X5NI	4		X
			CABLE SUB ASSY/FG	E440751*1	1		C
			SCREW	S-PASEMA-4X5ZC	2		X
N	**10**	1016 8762	COVER/POW-SW	RJE500340-002V01	1		C
	3. STAND BLOCK						
N	**11**	1016 6709	STAND/EDP	RJE501141-001V01	1		C
N	**12**	1016 6710	POLE/EDP	RJE501142-001V01	1		C
N	**13**	1016 6712	SHAFT/ROTARY	RJE501144-001V01	1		C
N	**14**	1016 6711	CAP/HINGE EDP	RJE501143-001V01	1		C
N	**15**	1016 8769	CHASSIS/EDP	RJE501123-001V01	1		C
N	**16**	1016 8770	CABLE SUB ASSY/CNB2	RJE501196*001V01	1		C
	17	6246 6529	RUBBER/PAT ED14	E412136-1	4	AD	C
			SCREW	S-BDB0-3X8NI	8		X
			CUSHION/A EDP	RJE501226-001V01	1		X
N	**18**		PCB ASSY/EDP-CNB1	RJE501246*001V01	1		C
	D2		DIODE/CHIP	1SR154-400TE25	1		X
	D1		DIODE/CHIP	RSX501L-20TE25	1		X
	CN1		CONNECTOR	ID9P33E4GX28	1		X
	CN2		CONNECTOR	B8B-PH-K-S(LF)	1		X
	J1		JACK/POWER	HEC3600-010110	1		X
			SCREW	S-PASEMA-4X5ZC	1		X
			SCREW	S-PADLMA-3X25ZCI	4		X
N	**19**	1017 8517	CHASSIS/COMB A-EDP	RJE501124-001V01	1		C
N	**20**	1017 8520	CHASSIS/COMB B-EDP	RJE501193-001V01	1		C

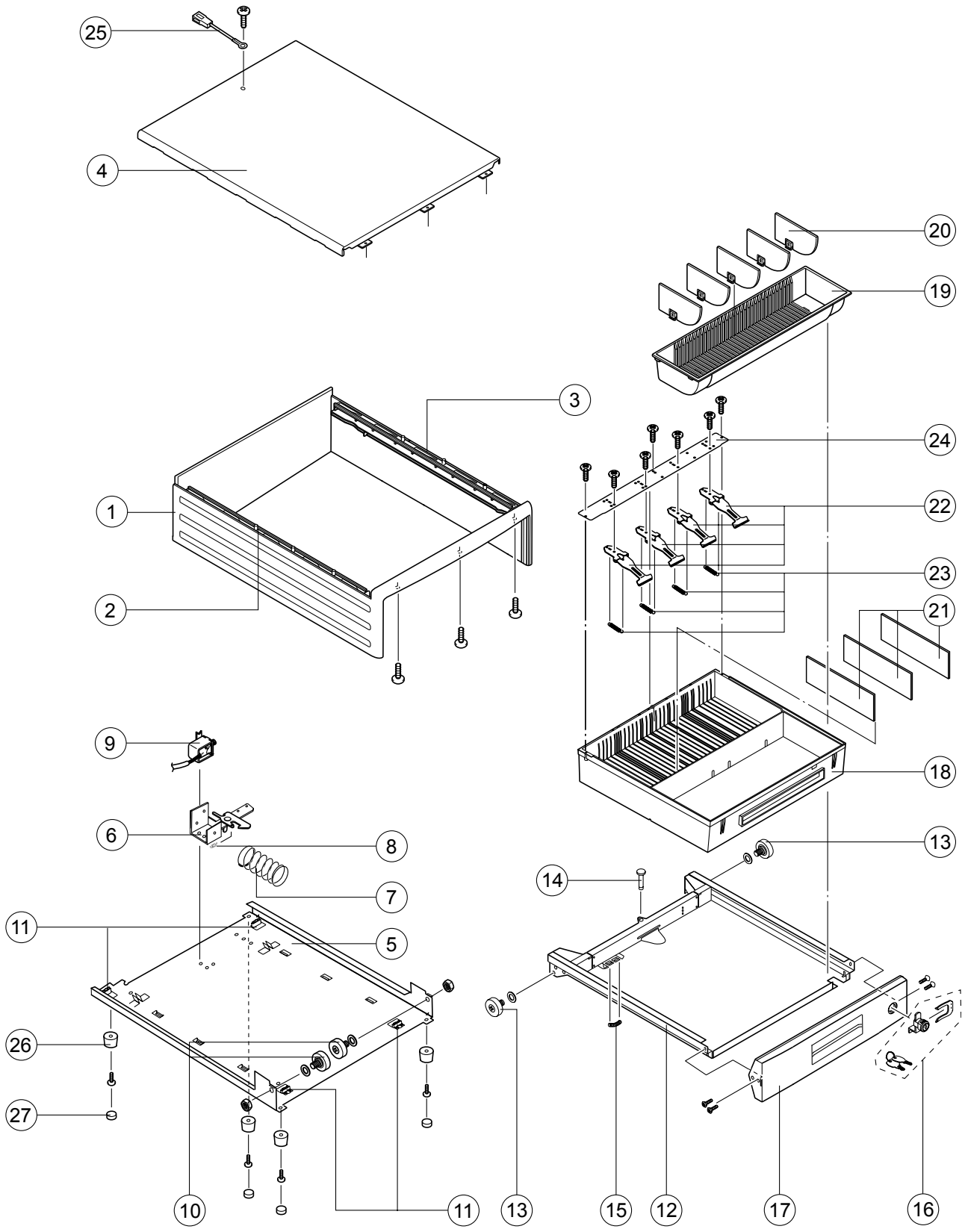
12. DRAWER (DL-2425)



DL-2425(M type)

N	Item	Code No.	Parts Name	Specification	Qt'y	Price code	Rank
	1		CASE/MAIN	RJE500529-001	1	NOT SUPPLY	X
N		1012 0508	PLATE/BOTTOM	RJE500534-001	1		X
N	2	1012 0509	CHASSIS/LEFT	RJE500532-001	1		X
N	3	1012 0510	CHASSIS/RIGHT	RJE500533-001	1		X
N	4	1012 0511	COVER/TOP	E240850-4	1		C
N	5	1012 0523	CHASSIS/BOTTOM	RJE500531-001	1		X
N	6	1012 0528	LOCK SUB ASSY	RJE500538*001	1		C
	7	6246 5010	SPRING/PRESS	E412069-1	1	AA	X
N	8	1012 0529	PLATE/SPRING ED20	RJE500536-001	1		X
		1008 0393	SPRING/LOCK	RJE500007-001	1	AA	C
			SCREW	4X8 ZMC-3	3		X
N	9	1008 7972	SOLENOID SUB ASSY	RJE500128*003	1		B
N		1008 0964	SWITCH/MICRO	VX-013-1A3	1		B
			SCREW	3X14 ZMC-3	2		X
			TIE/INSULICK	T-18S	1		X
	10	5500 0619	ROLLER/DELRIN	DR-19B1	2	AG	B
			NUT/HEX	6 ZMC-3	2		X
			WASHER	6X13X1.0 ZMC-3	2		X
	11	1008 0450	RUBBER/DUMPER	RJE500005-001	4	AB	X
			SCREW	4X5 ZMC-3	3		X
	12	1007 8903	DRAWER SUB ASSY	E341274*1	1	BJ	X
	13	5500 0619	ROLLER/DELRIN	DR-19B1	2	AG	B
	14	5200 0106	RIVET	5X30	1	AA	X
	15	6246 5030	SPRING/EARTH	E412092-1	1	AA	X
	16	1007 9060	LOCK/CYLINDER	CL-16	1	BA	C
N	17	1012 1046	PANEL/FRONT	RJE500530-001	1		X
			SCREW	3X10 NI	2		X
		5440 0399	WASHER	6X13X1.0 ZMC-3	2	AA	X
	18	1007 8757	CASE/BILL	E140505-1	1	AT	C
N	19	1010 6267	CASE/COIN	RJE500284-1	1	AH	C
N	20	1011 0335	PLATE/COIN CASE PARTITION	RJE500285-1	4	AA	B
	21	1010 6268	PLATE/BILL CASE PARTITION	RJE500219-001	4	AA	B
	22	1007 9062	BILL HOLDER SUB ASSY	E341290*1	5	AE	B
	23	1007 9063	SPRING/BILL HOLDER	E441357-1	5	AA	C
	24	1007 9064	BRACKET/BILL HOLDER	E240845-1	1	AD	X
			SCREW	3X8 ZMC-3	3		X
			SCREW	3X5 NI	5		X
			SCREW	3X6 ZMC-3	15		X
N	25	1008 6054	FG CABLE SUB ASSY	RJE500104*001	1		X
			SCREW	3X6 ZMC-3	3		X
			WASHER	4	1		X
			LABEL/DL-2425	E341256-33	1		X
N	26	1012 5287	CASE/RUBBER	RJE500667-001	4		C
	27	6246 6529	RUBBER/PAD	E412136-1	4	AD	C
			SCREW	4X8 ZMC-3	4		X
N		1013 1033	PLATE/FIX	RJE500775-001	2		X

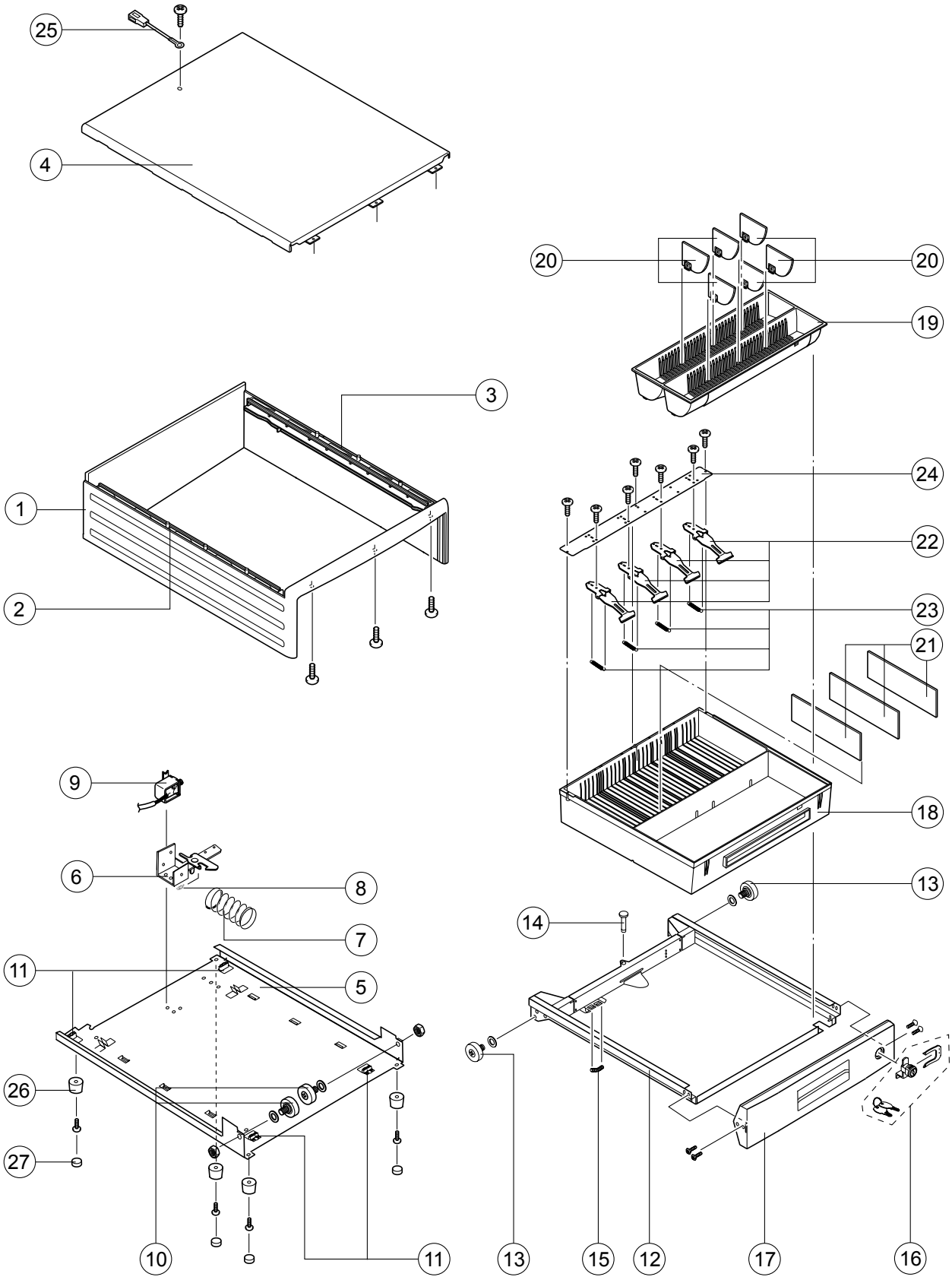
13. DRAWER (DL-2525)



DL-2525(M type)

N	Item	Code No.	Parts Name	Specification	Qt'y	Price code	Rank
	1		CASE/MAIN	RJE500529-001	1	NOT SUPPLY	X
N		1012 0508	PLATE/BOTTOM	RJE500534-001	1		X
N	2	1012 0509	CHASSIS/LEFT	RJE500532-001	1		X
N	3	1012 0510	CHASSIS/RIGHT	RJE500533-001	1		X
N	4	1012 0511	COVER/TOP	E240850-4	1		C
N	5	1012 0523	CHASSIS/BOTTOM	RJE500531-001	1		X
N	6	1012 0528	LOCK SUB ASSY	RJE500538*001	1		C
	7	6246 5010	SPRING/PRESS	E412069-1	1	AA	X
N	8	1012 0529	PLATE/SPRING ED20	RJE500536-001	1		X
		1008 0393	SPRING/LOCK	RJE500007-001	1	AA	C
			SCREW	4X8 ZMC-3	3		X
N	9	1008 7972	SOLENOID SUB ASSY	RJE500128*003	1		B
N		1008 0964	SWITCH/MICRO	VX-013-1A3	1		B
			SCREW	3X14 ZMC-3	2		X
			TIE/INSULICK	T-18S	1		X
	10	5500 0619	ROLLER/DELRIN	DR-19B1	2	AG	B
			NUT/HEX	6 ZMC-3	2		X
			WASHER	6X13X1.0 ZMC-3	2		X
	11	1008 0450	RUBBER/DUMPER	RJE500005-001	4	AB	X
			SCREW	4X5 ZMC-3	3		X
	12	1007 8903	DRAWER SUB ASSY	E341274*1	1	BJ	X
	13	5500 0619	ROLLER/DELRIN	DR-19B1	2	AG	B
	14	5200 0106	RIVET	5X30	1	AA	X
	15	6246 5030	SPRING/EARTH	E412092-1	1	AA	X
	16	1007 9060	LOCK/CYLINDER	CL-16	1	BA	C
N	17	1012 1046	PANEL/FRONT	RJE500530-001	1		X
			SCREW	3X10 NI	2		X
		5440 0399	WASHER	6X13X1.0 ZMC-3	2	AA	X
	18	1007 8757	CASE/BILL	E140505-1	1	AT	C
N	19	1010 6267	CASE/COIN	RJE500284-1	1	AH	C
N	20	1011 0335	PLATE/COIN CASE PARTITION	RJE500285-1	5	AA	B
	21	1010 6268	PLATE/BILL CASE PARTITION	RJE500219-001	3	AA	B
	22	1007 9062	BILL HOLDER SUB ASSY	E341290*1	4	AE	B
	23	1007 9063	SPRING/BILL HOLDER	E441357-1	4	AA	C
	24	1007 9064	BRACKET/BILL HOLDER	E240845-1	1	AD	X
			SCREW	3X8 ZMC-3	3		X
			SCREW	3X5 NI	4		X
			SCREW	3X6 ZMC-3	15		X
N	25	1008 6054	FG CABLE SUB ASSY	RJE500104*001	1		X
			SCREW	3X6 ZMC-3	3		X
			WASHER	4	1		X
			LABEL/DL-2525	E341256-34	1		X
N	26	1012 5287	CASE/RUBBER	RJE500667-001	4		C
	27	6246 6529	RUBBER/PAD	E412136-1	4	AD	C
			SCREW	4X8 ZMC-3	4		X
N		1013 1033	PLATE/FIX	RJE500775-001	2		X

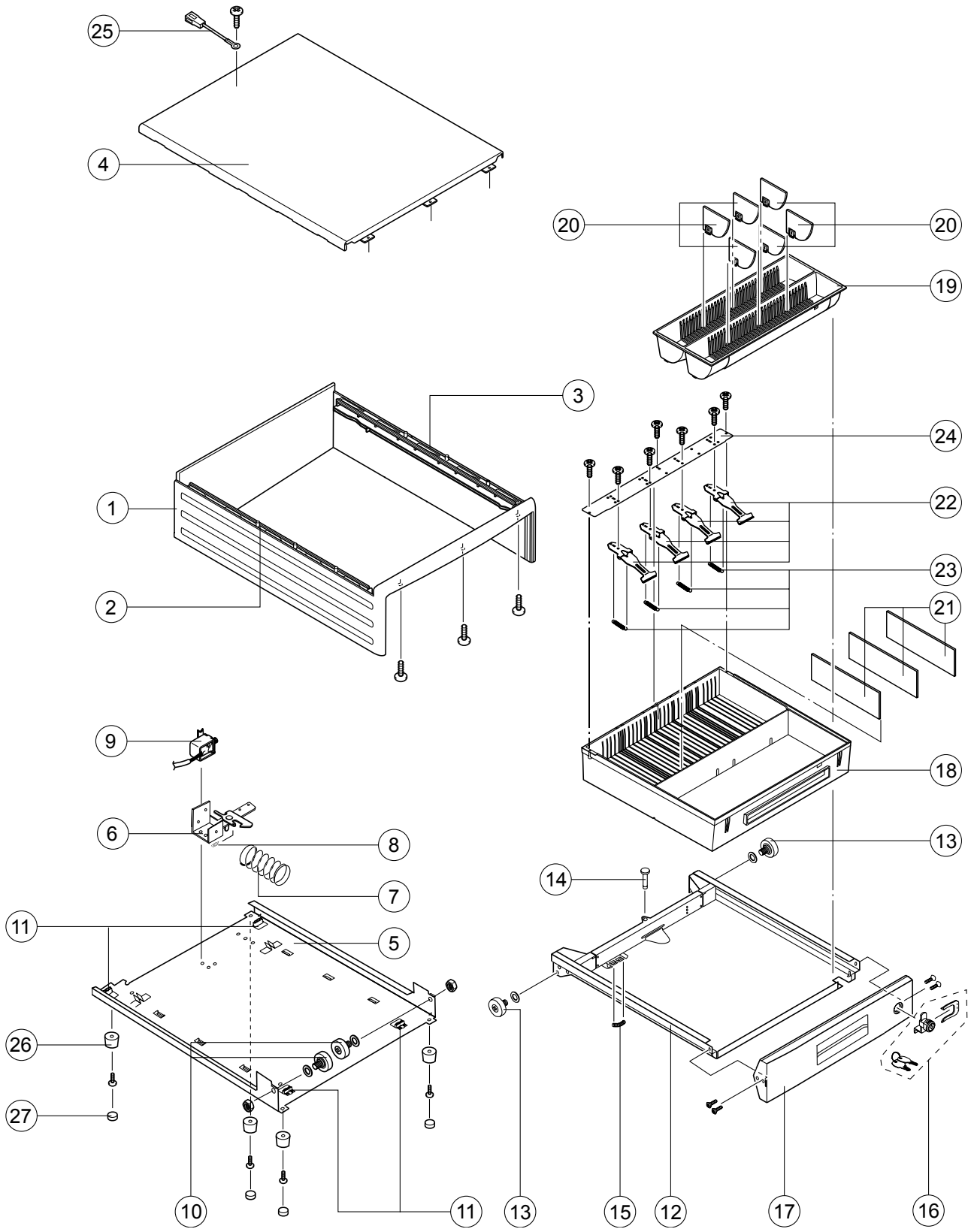
14. DRAWER (DL-2785)



DL-2785(M type)

N	Item	Code No.	Parts Name	Specification	Qt'y	Price code	Rank
	1		CASE/MAIN	RJE500529-001	1	NOT SUPPLY	X
N		1012 0508	PLATE/BOTTOM	RJE500534-001	1		X
N	2	1012 0509	CHASSIS/LEFT	RJE500532-001	1		X
N	3	1012 0510	CHASSIS/RIGHT	RJE500533-001	1		X
N	4	1012 0511	COVER/TOP	E240850-4	1		C
N	5	1012 0523	CHASSIS/BOTTOM	RJE500531-001	1		X
N	6	1012 0528	LOCK SUB ASSY	RJE500538*001	1		C
	7	6246 5010	SPRING/PRESS	E412069-1	1	AA	X
N		1012 0529	PLATE/SPRING ED20	RJE500536-001	1		X
	8	1008 0393	SPRING/LOCK	RJE500007-001	1	AA	C
			SCREW	4X8 ZMC-3	3		X
N	9	1008 7974	SOLENOID SUB ASSY	RJE500128*005	1		B
			TIE/INSULICK	T-18S	1		X
	10	5500 0619	ROLLER/DELRIN	DR-19B1	2	AG	B
			NUT/HEX	6 ZMC-3	2		X
			WASHER	6X13X1.0 ZMC-3	2		X
	11	1008 0450	RUBBER/DUMPER	RJE500005-001	4	AB	X
			SCREW	4X5 ZMC-3	3		X
	12	1007 8903	DRAWER SUB ASSY	E341274*1	1	BJ	X
	13	5500 0619	ROLLER/DELRIN	DR-19B1	2	AG	B
	14	5200 0106	RIVET	5X30	1	AA	X
	15	6246 5030	SPRING/EARTH	E412092-1	1	AA	X
	16	1007 9060	LOCK/CYLINDER	CL-16	1	BA	C
N	17	1012 1046	PANEL/FRONT	RJE500530-001	1		X
			SCREW	3X10 NI	2		X
			WASHER	6X13X1.0 ZMC-3	2		X
	18	1007 8757	CASE/BILL	E140505-1	1	AT	C
N	19	1011 0333	CASE/COIN	RJE500217-001	1		C
N	20	1011 0332	PLATE/COIN CASE PARTITION	RJE500216-001	6		B
	21	1010 6268	PLATE/BILL CASE PARTITION	RJE500219-001	3	AA	B
	22	1007 9062	BILL HOLDER SUB ASSY	E341290*1	4	AE	B
	23	1007 9063	SPRING/BILL HOLDER	E441357-1	4	AA	C
	24	1007 9064	BRACKET/BILL HOLDER	E240845-1	1	AD	X
			SCREW	3X8 ZMC-3	3		X
			SCREW	3X5 NI	4		X
			SCREW	3X6 ZMC-3	15		X
N	25	1008 6054	FG CABLE SUB ASSY	RJE500104*001	1		X
			SCREW	3X6 ZMC-3	3		X
			WASHER	4	1		X
			LABEL/DL-2785	E341256-35	1		X
N	26	1012 5287	CASE/RUBBER	RJE500667-001	4		C
	27	6246 6529	RUBBER/PAD	E412136-1	4	AD	C
			SCREW	4X8 ZMC-3	4		X
N		1013 1033	PLATE/FIX	RJE500775-001	2		X

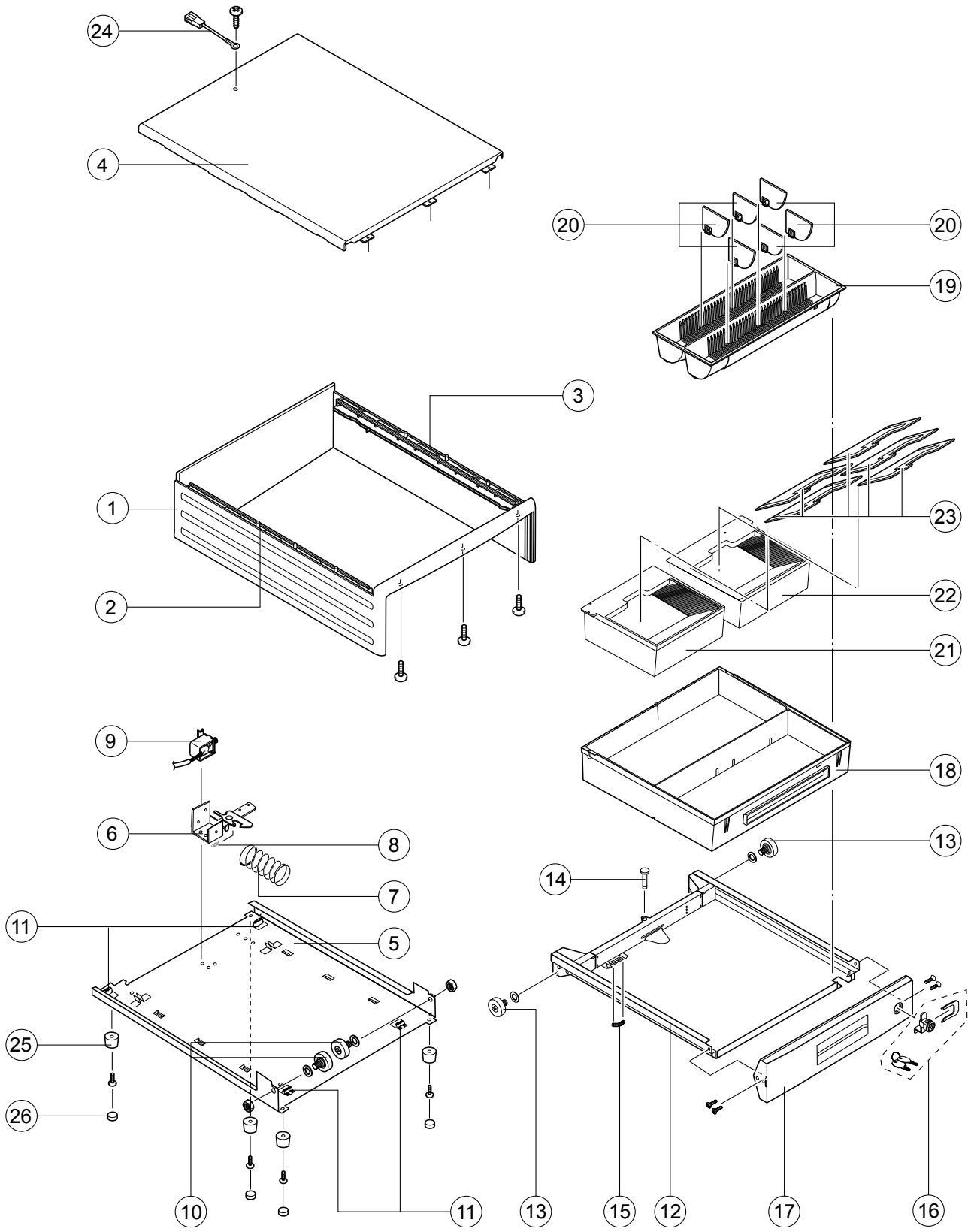
15. DRAWER (DL-2786)



DL-2786(M type)

N	Item	Code No.	Parts Name	Specification	Qt'y	Price code	Rank
	1		CASE/MAIN	RJE500529-001	1	NOT SUPPLY	X
N		1012 0508	PLATE/BOTTOM	RJE500534-001	1		X
N	2	1012 0509	CHASSIS/LEFT	RJE500532-001	1		X
N	3	1012 0510	CHASSIS/RIGHT	RJE500533-001	1		X
N	4	1012 0511	COVER/TOP	E240850-4	1		C
N	5	1012 0523	CHASSIS/BOTTOM	RJE500531-001	1		X
N	6	1012 0528	LOCK SUB ASSY	RJE500538*001	1		C
	7	6246 5010	SPRING/PRESS	E412069-1	1	AA	X
N		1012 0529	PLATE/SPRING ED20	RJE500536-001	1		X
	8	1008 0393	SPRING/LOCK	RJE500007-001	1	AA	C
			SCREW	4X8 ZMC-3	3		X
N	9	1008 7972	SOLENOID SUB ASSY	RJE500128*003	1		B
N		1008 0964	SWITCH/MICRO	VX-013-1A3	1		B
			SCREW	3X14 ZMC-3	2		X
			TIE/INSULICK	T-18S	1		X
	10	5500 0619	ROLLER/DELRIN	DR-19B1	2	AG	B
			NUT/HEX	6 ZMC-3	2		X
			WASHER	6X13X1.0 ZMC-3	2		X
	11	1008 0450	RUBBER/DUMPER	RJE500005-001	4	AB	X
			SCREW	4X5 ZMC-3	3		X
	12	1007 8903	DRAWER SUB ASSY	E341274*1	1	BJ	X
	13	5500 0619	ROLLER/DELRIN	DR-19B1	2	AG	B
	14	5200 0106	RIVET	5X30	1	AA	X
	15	6246 5030	SPRING/EARTH	E412092-1	1	AA	X
	16	1007 9060	LOCK/CYLINDER	CL-16	1	BA	C
N	17	1012 1046	PANEL/FRONT	RJE500530-001	1		X
			SCREW	3X10 NI	2		X
		5440 0399	WASHER	6X13X1.0 ZMC-3	2	AA	X
	18	1007 8757	CASE/BILL	E140505-1	1	AT	C
N	19	1011 0333	CASE/COIN	RJE500217-001	1		C
N	20	1011 0332	PLATE/COIN CASE PARTITION	RJE500216-001	6		B
	21	1010 6268	PLATE/BILL CASE PARTITION	RJE500219-001	3	AA	B
	22	1007 9062	BILL HOLDER SUB ASSY	E341290*1	4	AE	B
	23	1007 9063	SPRING/BILL HOLDER	E441357-1	4	AA	C
	24	1007 9064	BRACKET/BILL HOLDER	E240845-1	1	AD	X
			SCREW	3X8 ZMC-3	3		X
			SCREW	3X5 NI	4		X
			SCREW	3X6 ZMC-3	15		X
N	25	1008 6054	FG CABLE SUB ASSY	RJE500104*001	1		X
			SCREW	3X6 ZMC-3	3		X
			WASHER	4	1		X
			LABEL/DL-2786	E341256-36	1		X
N	26	1012 5287	CASE/RUBBER	RJE500667-001	4		C
	27	6246 6529	RUBBER/PAD	E412136-1	4	AD	C
			SCREW	4X8 ZMC-3	4		X
N		1013 1033	PLATE/FIX	RJE500775-001	2		X

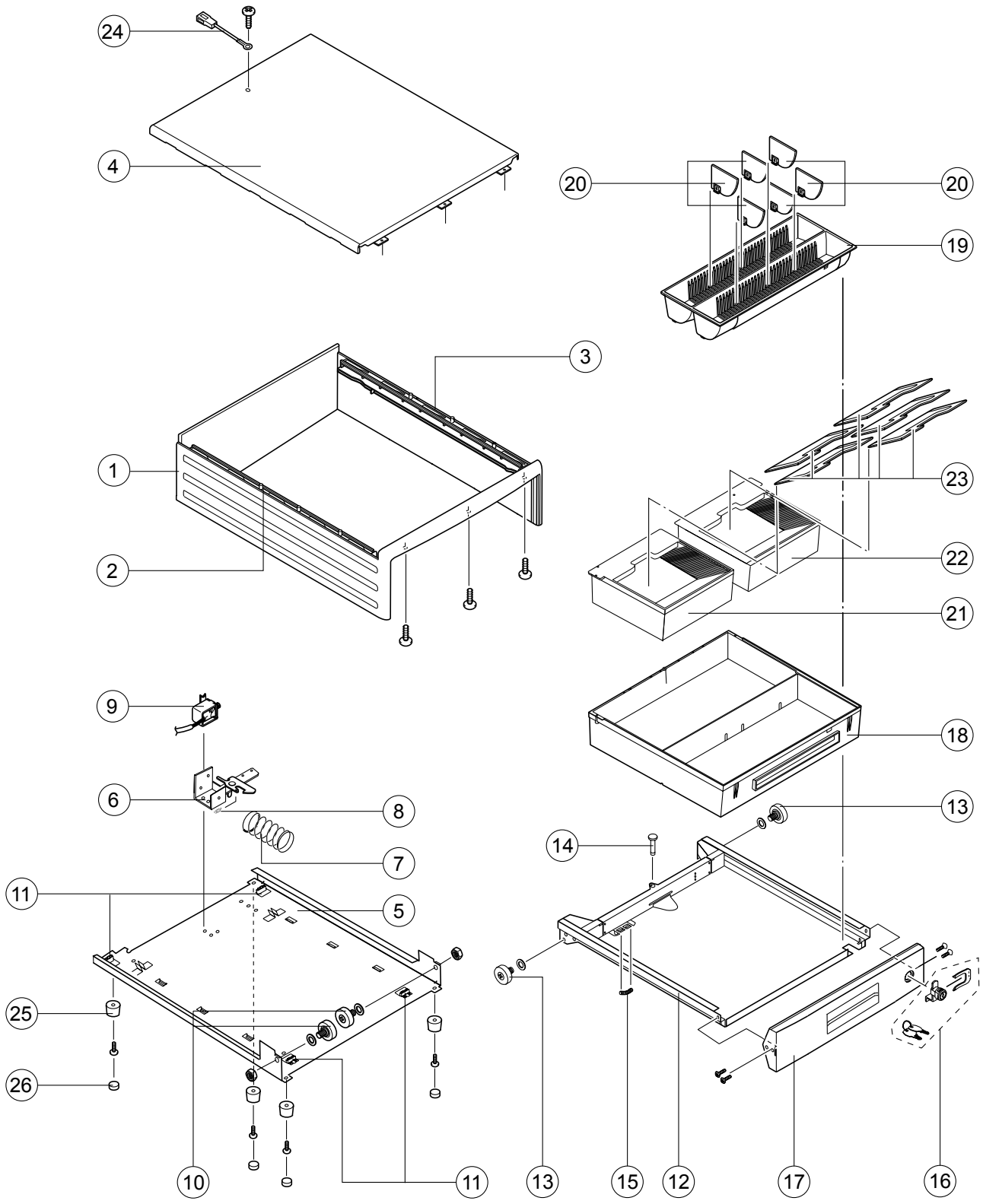
16. DRAWER (DL-2920)



DL-2920(M type)

N	Item	Code No.	Parts Name	Specification	Qt'y	Price code	Rank
	1		CASE/MAIN	RJE500529-001	1	NOT SUPPLY	X
N		1012 0508	PLATE/BOTTOM	RJE500534-001	1		X
N	2	1012 0509	CHASSIS/LEFT	RJE500532-001	1		X
N	3	1012 0510	CHASSIS/RIGHT	RJE500533-001	1		X
N	4	1012 0511	COVER/TOP	E240850-4	1		C
N	5	1012 0523	CHASSIS/BOTTOM	RJE500531-001	1		X
N	6	1012 0528	LOCK SUB ASSY	RJE500538*001	1		C
	7	6246 5010	SPRING/PRESS	E412069-1	1	AA	X
N		1012 0529	PLATE/SPRING ED20	RJE500536-001	1		X
	8	1008 0393	SPRING/LOCK	RJE500007-001	1	AA	C
			SCREW	4X8 ZMC-3	3		X
N	9	1008 7974	SOLENOID SUB ASSY	RJE500128*005	1		B
			TIE/INSULICK	T-18S	1		X
	10	5500 0619	ROLLER/DELRIN	DR-19B1	2	AG	B
			NUT/HEX	6 ZMC-3	2		X
			WASHER	6X13X1.0 ZMC-3	2		X
	11	1008 0450	RUBBER/DUMPER	RJE500005-001	4	AB	X
			SCREW	4X5 ZMC-3	3		X
	12	1007 8903	DRAWER SUB ASSY	E341274*1	1	BJ	X
	13	5500 0619	ROLLER/DELRIN	DR-19B1	2	AG	B
	14	5200 0106	RIVET	5X30	1	AA	X
	15	6246 5030	SPRING/EARTH	E412092-1	1	AA	X
	16	1007 9060	LOCK/CYLINDER	CL-16	1	BA	C
N	17	1012 1046	PANEL/FRONT	RJE500530-001	1		X
			SCREW	3X10 NI	2		X
		5440 0399	WASHER	6X13X1.0 ZMC-3	2	AA	X
	18	1007 8757	CASE/BILL	E140505-1	1	AT	C
N	19	1011 0333	CASE/COIN	RJE500217-001	1		C
N	20	1011 0332	PLATE/COIN CASE PARTITION	RJE500216-001	6		B
	21	1008 0660	TRAY/BILL LED18	RJE500012-001	1	AJ	C
	22	1008 0662	TRAY/BILL RED18	RJE500012-002	1	AJ	C
	23	1008 0663	PLATE/BILL CASE PARTITION	RJE500013-001	5	AB	C
			SCREW	3X8 ZMC-3	3		X
			SCREW	3X6 ZMC-3	15		X
N	24	1008 6054	FG CABLE SUB ASSY	RJE500104*001	1		X
			SCREW	3X6 ZMC-3	3		X
			WASHER	4	1		X
			LABEL/DL-2920	E341256-37	1		X
N	25	1012 5287	CASE/RUBBER	RJE500667-001	4		C
	26	6246 6529	RUBBER/PAD	E412136-1	4	AD	C
			SCREW	4X8 ZMC-3	4		X
N		1013 1033	PLATE/FIX	RJE500775-001	2		X

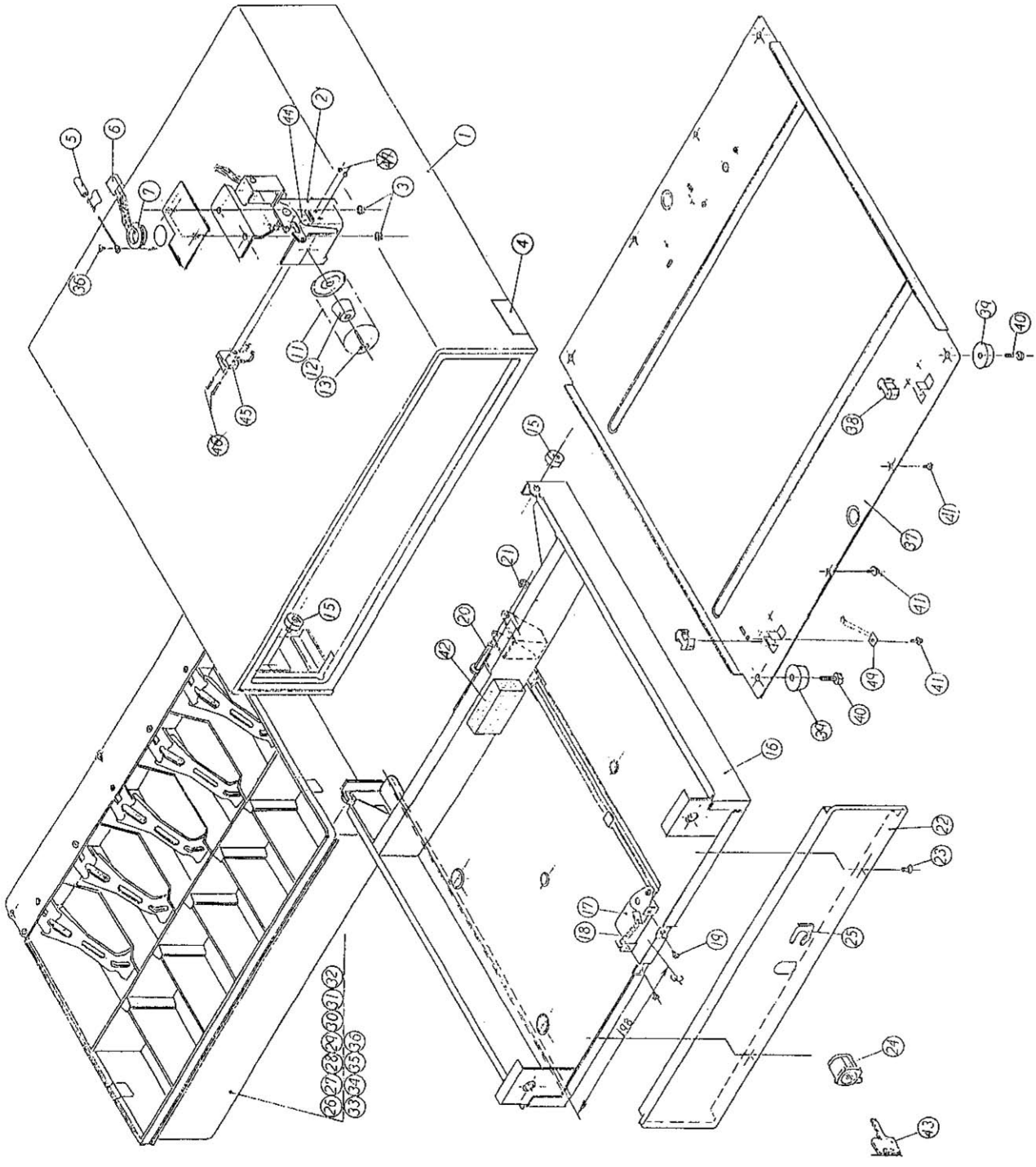
17. DRAWER (DL-2921)



DL-2921(M type)

N	Item	Code No.	Parts Name	Specification	Qt'y	Price code	Rank
	1		CASE/MAIN	RJE500529-001	1	NOT SUPPLY	X
N		1012 0508	PLATE/BOTTOM	RJE500534-001	1		X
N	2	1012 0509	CHASSIS/LEFT	RJE500532-001	1		X
N	3	1012 0510	CHASSIS/RIGHT	RJE500533-001	1		X
N	4	1012 0511	COVER/TOP	E240850-4	1		C
N	5	1012 0523	CHASSIS/BOTTOM	RJE500531-001	1		X
N	6	1012 0528	LOCK SUB ASSY	RJE500538*001	1		C
	7	6246 5010	SPRING/PRESS	E412069-1	1	AA	X
N		1012 0529	PLATE/SPRING ED20	RJE500536-001	1		X
	8	1008 0393	SPRING/LOCK	RJE500007-001	1	AA	C
			SCREW	4X8 ZMC-3	3		X
N	9	1008 7972	SOLENOID SUB ASSY	RJE500128*003	1		B
N		1008 0964	SWITCH/MICRO	VX-013-1A3	1		B
			SCREW	3X14 ZMC-3	2		X
			TIE/INSULICK	T-18S	1		X
	10	5500 0619	ROLLER/DELRIN	DR-19B1	2	AG	B
			NUT/HEX	6 ZMC-3	2		X
			WASHER	6X13X1.0 ZMC-3	2		X
	11	1008 0450	RUBBER/DUMPER	RJE500005-001	4	AB	X
			SCREW	4X5 ZMC-3	3		X
	12	1007 8903	DRAWER SUB ASSY	E341274*1	1	BJ	X
	13	5500 0619	ROLLER/DELRIN	DR-19B1	2	AG	B
	14	5200 0106	RIVET	5X30	1	AA	X
	15	6246 5030	SPRING/EARTH	E412092-1	1	AA	X
	16	1007 9060	LOCK/CYLINDER	CL-16	1	BA	C
N	17	1012 1046	PANEL/FRONT	RJE500530-001	1		X
			SCREW	3X10 NI	2		X
		5440 0399	WASHER	6X13X1.0 ZMC-3	2	AA	X
	18	1007 8757	CASE/BILL	E140505-1	1	AT	C
N	19	1011 0333	CASE/COIN	RJE500217-001	1		C
N	20	1011 0332	PLATE/COIN CASE PARTITION	RJE500216-001	6		B
	21	1008 0660	TRAY/BILL LED18	RJE500012-001	1	AJ	C
	22	1008 0662	TRAY/BILL RED18	RJE500012-002	1	AJ	C
	23	1008 0663	PLATE/BILL CASE PARTITION	RJE500013-001	5	AB	C
			SCREW	3X8 ZMC-3	3		X
			SCREW	3X6 ZMC-3	15		X
N	24	1008 6054	FG CABLE SUB ASSY	RJE500104*001	1		X
			SCREW	3X6 ZMC-3	3		X
			WASHER	4	1		X
			LABEL/DL-2921	E341256-38	1		X
N	25	1012 5287	CASE/RUBBER	RJE500667-001	4		C
	26	6246 6529	RUBBER/PAD	E412136-1	4	AD	C
			SCREW	4X8 ZMC-3	4		X
N		1013 1033	PLATE/FIX	RJE500775-001	2		X

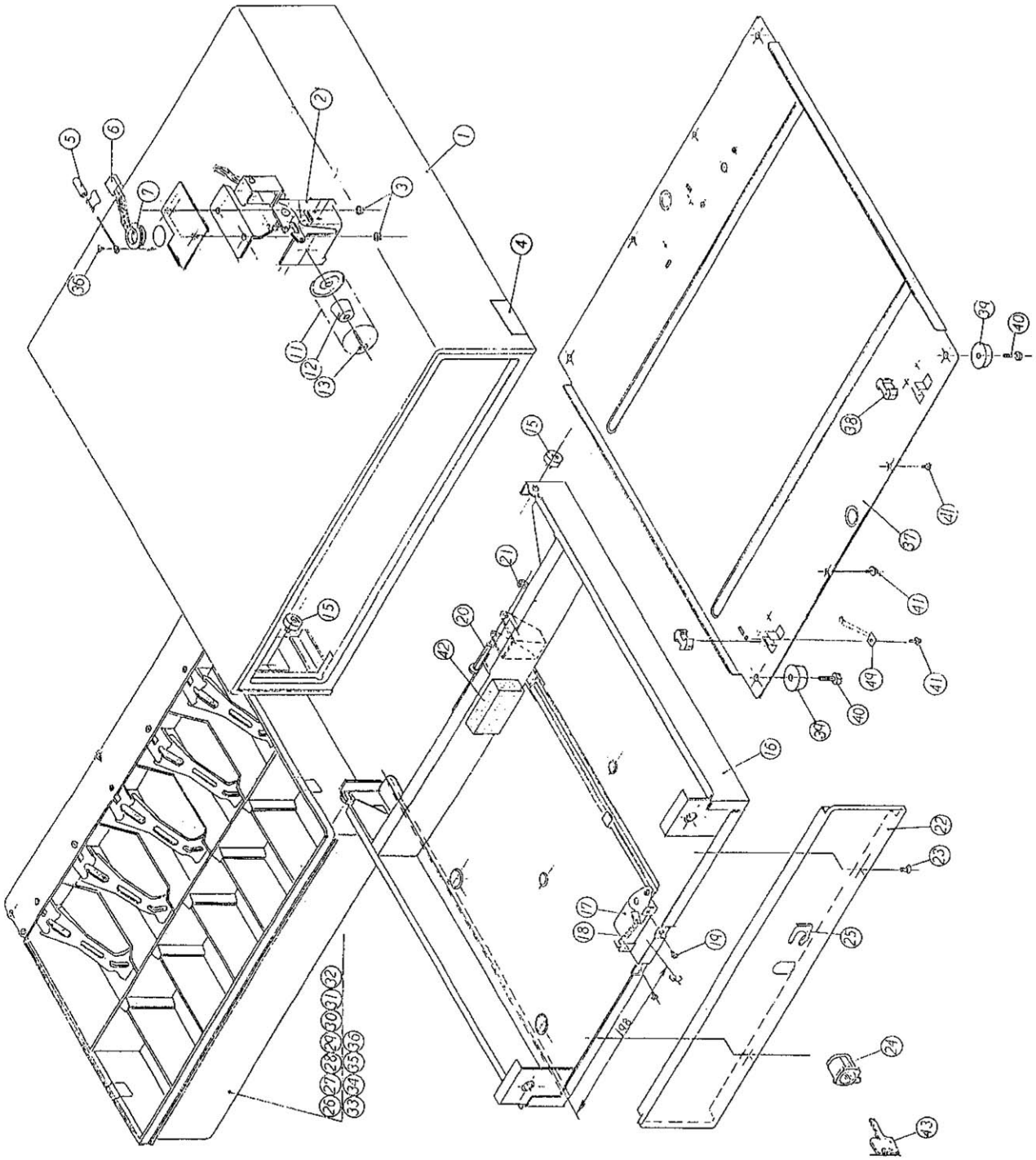
18. DRAWER (DL-3616)



DL-3616 (L type)

N	Item	Code No.	Parts Name	Specification	Qt'y	Price code	Rank
	2	1907 7272	LOCK ASSY	ZD00290-0	1	BZ	B
	3	1906 0672	NUT	M4XP0.7	2	AA	X
N	4	9487 0383	LABEL	DL-3616	1	AL	X
N	5	1907 9613	WIRE/FG	ZD31670	1	AI	X
	6	1907 0223	CONNECTOR	1625-03PI	1	AL	X
	7	1902 7112	GROMET	B-1	1	AB	X
	11	1902 7076	SPRING	ZD01370B	1	AC	C
	12	1902 6829	RUBBER/DAMPER	K2320	1	AC	X
	13	1907 0234	SCREW/TAPPING	M4X16	1	AA	X
	15	1902 6842	ROLLER/DERLIN	DR-19B	4	AH	B
	16	1906 0679	DRAWER SUB ASSY	ZD58120	1	CF	X
	17	1902 6992	LEVER/OPEN	ZD00250	1	AN	X
	18	1907 7930	SPRING/OPEN LEVER	ZD00254	1	AB	C
	19	1906 0680	SCREW/TAPPING	M3X4	2	AA	X
	20	1906 4150	RIVET	x5X30	1	AA	X
	21	5580 1452	RING/CS	CSTW-5	1	AA	X
	22	1906 0683	PANEL/FRONT	ZD56721	1	BH	X
	23	1906 0684	SCREW/TAPPING	M3.5X8	2	AA	X
	24	1902 7027	KEY/CYLINDER	ZD00226	1	BB	C
	25	1907 7928	CLIP	ZD00226-2	1	AJ	X
	26	1906 0685	CASE/BILL	ZD04851	1	BO	C
	27	1907 7926	CASE/COIN	ZD04843PS	1	BN	C
	28	1907 7925	PLATE/BILL PARTITION	ZD04842	4	AH	C
	29	1907 7924	PLATE/COIN PARTITION	ZD04844	5	AD	C
	30	1907 7923	HOLDER/PARTITION PLATE	ZD04845	5	AC	X
	31	1902 6991	PLATE/BILL HOLDER FIXING	ZD00245	1	AK	X
	32	9487 0385	STOPPER/BILL HOLDER	ZV27041-1	5	AE	X
	33	6221 4902	HOLDER/BILL	ZD18931	5	AC	B
	34	6221 4904	SPRING/BILL HOLDER	ZD18932	5	AB	B
	35	1902 6987	SCREW/TAPPING	M3X8	5	AA	X
	36	1902 7093	SCREW/TAPPING	M3X6	6	AA	X
	37	1907 7922	PLATE/BOTTOM	ZD18031	1	CB	X
	38	1906 0689	RUBBER/DAMPER	ZD02032	2	AE	X
	39	1902 7046	FOOT/RUBBER	K3215	4	AJ	X
	40	1907 0234	SCREW/TAPPING	M4X16	4	AA	X
	41	1906 0691	SCREW/TAPPING	M3X5	5	AA	X
	42	1907 7920	CUSHION	ZD05422	1	AE	X
	43	1902 6214	KEY	ZD00226-1	1	AU	C
	44	1907 7943	LEVER/SWITCH	ZD00283	1	AL	C
	45	1907 7942	SWITCH/MICRO	SS-01GL-ET	1	BF	B
	49	1907 9615	EARTH/SPRING	ZD02162C	1	AE	C

19. DRAWER (DL-3617)



DL-3617 (L type)

N	Item	Code No.	Parts Name	Specification	Qt'y	Price code	Rank
	2	1907 7935	LOCK ASSY	ZD00280-0	1	BT	B
	3	1906 0672	NUT	M4XP0.7	2	AA	X
N	4	9487 0384	LABEL	DL-3617	1	AL	X
N	5	1907 9613	WIRE/FG	ZD31670	1	AI	X
	6	1907 0223	CONNECTOR	1625-03PI	1	AL	X
	7	1902 7112	GROMET	B-1	1	AB	X
	11	1902 7076	SPRING	ZD01370B	1	AC	C
	12	1902 6829	RUBBER/DAMPER	K2320	1	AC	X
	13	1907 0234	SCREW/TAPPING	M4X16	1	AA	X
	15	1902 6842	ROLLER/DERLIN	DR-19B	4	AH	B
	16	1906 0679	DRAWER SUB ASSY	ZD58120	1	CF	X
	17	1902 6992	LEVER/OPEN	ZD00250	1	AN	X
	18	1907 7930	SPRING/OPEN LEVER	ZD00254	1	AB	C
	19	1906 0680	SCREW/TAPPING	M3X4	2	AA	X
	20	1906 4150	RIVET	x5X30	1	AA	X
	21	5580 1452	RING/CS	CSTW-5	1	AA	X
	22	1906 0683	PANEL/FRONT	ZD56721	1	BH	X
	23	1906 0684	SCREW/TAPPING	M3.5X8	2	AA	X
	24	1902 7027	KEY/CYLINDER	ZD00226	1	BB	C
	25	1907 7928	CLIP	ZD00226-2	1	AJ	X
	26	1906 0685	CASE/BILL	ZD04851	1	BO	C
	27	1907 7926	CASE/COIN	ZD04843PS	1	BN	C
	28	1907 7925	PLATE/BILL PARTITION	ZD04842	4	AH	C
	29	1907 7924	PLATE/COIN PARTITION	ZD04844	5	AD	C
	30	1907 7923	HOLDER/PARTITION PLATE	ZD04845	5	AC	X
	31	1902 6991	PLATE/BILL HOLDER FIXING	ZD00245	1	AK	X
	32	9487 0385	STOPPER/BILL HOLDER	ZV27041-1	5	AE	X
	33	6221 4902	HOLDER/BILL	ZD18931	5	AC	B
	34	6221 4904	SPRING/BILL HOLDER	ZD18932	5	AB	B
	35	1902 6987	SCREW/TAPPING	M3X8	5	AA	X
	36	1902 7093	SCREW/TAPPING	M3X6	6	AA	X
	37	1907 7922	PLATE/BOTTOM	ZD18031	1	CB	X
	38	1906 0689	RUBBER/DAMPER	ZD02032	2	AE	X
	39	1902 7046	FOOT/RUBBER	K3215	4	AJ	X
	40	1907 0234	SCREW/TAPPING	M4X16	4	AA	X
	41	1906 0691	SCREW/TAPPING	M3X5	5	AA	X
	42	1907 7920	CUSHION	ZD05422	1	AE	X
	43	1902 6214	KEY	ZD00226-1	1	AU	C
	49	1907 9615	EARTH/SPRING	ZD02162C	1	AE	C

CASIO COMPUTER CO.,LTD.

Overseas Service Division

6-2, Hon-machi 1-Chome
Shibuya-ku, Tokyo 151-8543, Japan